State of Oregon
Department of Environmental Quality Memorandum

Date: January 15, 2016

To: File ECSI #395

Through: Keith Johnson, NWR Cleanup and Site Assessment Manager

From: David Lacey, Project Manager
NWR Cleanup Section

Subject: Schnitzer Investment Corp. Doane Lake Property File ECSI #395
Proposed Source Control Decision-Determination that Source Control Measure Satisfactorily Performed.

1.0 Introduction

This report presents the basis for the Oregon Department of Environmental Quality's proposed source control decision for the determination that the implemented source measure has been satisfactorily performed at the Schnitzer Investment Corp. (SIC) Doane Lake Property, ECSI #395, located at 6529 NW Front Avenue in Portland and upland from Portland Harbor Superfund site.

The Portland Harbor Superfund Site Memorandum of Understanding identifies three source control decision (SCD) to be submitted by DEQ to EPA. Such DEQ decisions include:

1. Determination whether an upland site is a current source of contamination to the river and sediment,
2. Selection of a source control measure (SCM), and
3. Determination that a SCM has been satisfactorily performed.

DEQ issued a SCM Selection SCD on May 9, 2013. Based on the results of the site's source control evaluation, DEQ selected cap in place and institutional controls as the preferred source control measure. DEQ's source control measure selection was documented in DEQ's May 9, 2013 *Revised Source Control Decision Report* (DEQ 2013) and is included in Attachment 7. EPA reviewed and concurred with in a May, 2013 letter.

DEQ's proposed source control decision regarding implantation of the selected SCM is that, source control measures implemented at the SIC Doane Lake Property (Site) adequately address source control for the Site. Continued long term monitoring of the cap and site stormwater will be conducted in accordance with the *Soil and Cap Management Plan (SCMP)* (Bridgewater Group 2015b).

2.0 Site Description and History

2.1 Site Description

The SIC-Doane Lake Property is located in the industrial area of northwest Portland at 6529 NW Front Avenue. Site location figures were presented in *Focused Source Control Evaluation Report and Proposed Source Control Actions* (Bridgewater 2011) and are included in Attachment 1. It encompasses 3.5 acres, is the northern portion of Tax Lot 700 and is zoned for general industrial use. The adjacent parcels are active or inactive industrial sites and include: Metro Central Transfer Station to the west, NL/Gould to the north, Arkema to the east, and Willbridge Terminals to the south.

2.2 Site History

The Property was originally submerged by Doane Lake. Industrialization of the Doane Lake area began in the 1930's when significant amounts of fill material were added to the lake. A detailed site history is presented in the *Focused Source Control Evaluation Report and Proposed Source Control Action* (Bridgewater Group 2011).

By 1970, the middle portion of Doane Lake was filled enough that it separated into what are now known as East Doane Lake and West Doane Lake. A portion of East Doane Lake on the Property was further filled by Gould as part of the final remedial action for the adjacent Gould site (Advanced Geoservices Corp., 2001). A remnant of the East Doane Lake still remains on the Property.

In 1947, Industrial Air Products Co., purchased the entire undeveloped Tax Lot 700 property from Bethlehem Steel. In the early 1950's the southern portion of Tax Lot 700 was developed as an acetylene and other industrial gas manufacturing site while the northern portion remained undeveloped. Site layout figures were presented in the *Focused Source Control Evaluation Report and Proposed Source Control Actions* (Bridgewater 2011) and are included in Attachment 1. In 1981, the leasehold was divided so that Air Liquide's predecessor only leased the southern portion of the tax lot, not including the Property. Air Liquide is still the tenant of MMGL on the southern half of the property, where it continues to operate an acetylene and other industrial gas manufacturing plant.

From approximately 1950 to 1980, the neighboring acetylene manufacturing plant placed lime (calcium hydroxide) into East Doane Lake, which at that time occupied much of the Property. Lime is a by-product of the acetylene manufacturing process. For an unknown time period, some of the lime was dredged and sold to farmers; however, not all the lime was removed. As a result, a layer of lime remains in the southeast portion of the Property approximately 10 to 13 feet below ground surface (bgs). Aerial photographs indicate that this portion of East Doane Lake was abandoned and filled in the early 1980s. The approximate extent of the lime layer is illustrated in Figure 4 of the *Focused Source Control Evaluation Report and Proposed Source Control Actions* (Bridgewater 2011) and included in Attachment 1.

Reportedly during the early 1960s and perhaps as early as 1959, according to aerial photographs, fill dirt possibly mixed with ESCO slag was used to construct a dike in the northeast corner extending from Front Avenue to the west partially across the Property as shown in Figure 4 of

the *Focused Source Control Evaluation Report and Proposed Source Control Actions* (Bridgewater 2011) and included in Attachment 1.

During the 1970s and possibly the late 1960s, filling with soil and Shredder Residue occurred in the northeast portion of the Property. From December 27, 1995, to January 23, 1996, with DEQ approval, SIC removed and recycled approximately 1,826 cubic yards of Shredder Residue that was present aboveground. Subsurface materials were left in place. It is estimated that Shredder Residue ranges approximately 10 to 13 feet thick. See Figure 4 of the *Focused Source Control Evaluation Report and Proposed Source Control Actions* (Bridgewater 2011) included in Attachment 1 for approximate extent.

2.3 Site Operations

The property is undeveloped and has no operating processes or ongoing activities. There are no paved surfaces and no stormwater or sanitary system piping.

2.3 Potential Sources of Contamination

Potential sources of contamination were identified as part of the source control evaluation based on a review of the current and historical operations, and environmental investigations at the site and adjacent properties. A summary of previous environmental investigations is presented in the *Focused Source Control Evaluation Report and Proposed Source Control* Actions (Bridgewater 2011).

A brief summary of these potential sources is presented below.

- Filling with Shredder Residue occurred in the northeast portion of the Property. According to MMGL, Shredder Residue of that era consisted typically of non-reclaimable residues composed largely of plastic, rubber, glass, fabric, foam, and non-ferrous metals.
- Construction fill possibly mixed with ESCO slag was used to construct a dike in the northeast corner that extends from Front Avenue to the west partially across the Site.
- The neighboring acetylene manufacturing plant placed lime (calcium hydroxide) into East Doane Lake. Lime is a byproduct of the acetylene manufacturing process.
- The Site has known impacts from former Rhone-Poulenc Site activities which is located to the west of the Site. Rhone-Poulenc is a former herbicide and pesticide manufacturer and is performing an area-wide assessment of impacts of its former operations.
- The Site has been impacted by the operations from the adjacent Gould Superfund site, at which remediation has been completed to address lead contamination resulting from prior use of that property for a lead reclamation and smelting operation. As described in the May 1997 Gould Amended Record of Decision, the Gould site included a portion of the SIC-Doane Lake Property that was necessary for implementation of the Gould remedy. Specifically, as part of the remedial action for that site, the East Doane Lake remnant on the Property was capped (sand cap with geotextile fabric layer) and armored. SIC entered into an Environmental Protection Easement and Declaration of Restrictive Covenants in

1998 that places restrictions on the development of this portion of the Property to protect that cap and provide sublateral support to the landfill on the adjacent Gould property.

2.4 Contaminant Transport Pathways

Potential contaminant transport pathways were evaluated by DEQ in the May 9, 2013 *Revised Source Control Decision Report* (DEQ 2013). Conclusions regarding each pathway are shown below.

2.4.1 Air - Concerns about the air pathway would result from releases where a portion of the material volatilized into the ambient air or where particulates are entrained in the air and are dispersed by prevailing winds. DEQ's May 9, 2013 *Revised Source Control Decision Report* (DEQ 2013) determined contaminated surface soil pose a potential threat to the Willamette River via the Air Pathway but volatilization of Site contaminants was considered an insignificant pathway to the river based on their physical properties. The installation of the site cap has covered any exposed contaminated surface soil eliminating the potential for mobilization of particulates by wind. Continued monitoring in accordance with the SCMP (Bridgewater 2015) will ensure long term effectiveness of the selected source control measure.

2.4.2 Overland Flow- DEQ's May 9, 2013 *Revised Source Control Decision Report* (DEQ 2013) determined overland flow is not a complete pathway because the facility is located approximately 1,200 feet inland from the Willamette River with topographic rises between the river and the facility.

2.4.3 Groundwater – DEQ's May 9, 2013 *Revised Source Control Decision Report* (DEQ 2013) determined Site contaminates in groundwater do not pose a current or likely future threat to the Willamette River based on the concentration of detected COIs in down-gradient wells, properties of groundwater COIs, and distance to the river.

2.4.4 Stormwater – DEQ's May 9, 2013 *Revised Source Control Decision Report* (DEQ 2013) determined stormwater was not a significant pathway based on the reported absence of any directed discharge from the Site, any direct discharge from the Site into a stormwater system, and on the topography and drainage patters.

To the extent there was any indirect discharge of stormwater the installation of the site cap has eliminated any direct contact of stormwater with contaminated soil. The re-grading of the Site has routed stormwater to the East Doane Lake remnant greatly reducing the likelihood of off-site contaminant migration via stormwater. Continued monitoring in accordance with the SCMP (Bridgewater 2015) will ensure long term effectiveness of the selected source control measure.

2.5 Stormwater System

The site has no plumbed or surface water connections to the City of Portland stormwater collection system. The 2014 SCM created onsite stormwater swales to ensure all stormwater from the Site is controlled and routed to the onsite Doane Lake remnant. MMGL raised the level of the berms around the Doane Lake remnant by 6-inches to increase the onsite stormwater retention capacity of the Site and the City Right-of-Way in front of the Site was sloped away from NW Front Ave toward the Site to limit discharges from the Right-of-Way.

3.0 Regulatory History

The Property is undeveloped and has no operating processes or ongoing activities. There are no records of environmental permits issued for operations at the Property, aboveground or underground storage tanks, hazardous waste generation, violations, pollution complaints, or spills. In 1995, DEQ approved the removal of approximately 1,800 cubic yards of above grade Shredder Residue piles from the Property, for off-site recycling for the recovery of non-ferrous metals.

On October 11, 2010, MMGL entered into a Letter Agreement to perform a Focused Source Control Assessment. Under this agreement MMGL submitted the following:

- *Focused Source Control Evaluation Work Plan* (Bridgewater 2010)
- *Focused Source Control Evaluation Report and Proposed Source Control Actions* (Bridgewater 2011)
- *Addendum to the Focused Source Control Evaluation Report and, Surface Soil Sampling Results* (Bridgewater 2012)
- *Addendum to the Source Control Action Work Plan* (Bridgewater 2014)
- *Source Control Measure Construction Completion Report* (2015a)
- *Soil and Cap Management Plan MMGL Corp. Doan Lake Site* (2015b)
- *2015 MMGL Corp. Doane Lake Annual Inspection Report* (2015c)

Based on the results of the source control evaluation, DEQ selected cap in place and institutional controls as the preferred source control measure. DEQ's source control measure selection was documented in DEQ's May 9, 2013 *Revised Source Control Decision Report* (DEQ 2013).

MMGL implemented the source control measures in 2014 and completed performance monitoring in 2015.

4.0 DEQ's 2013 Source Control Decision (Source Control Measure Selection)

DEQ's May 9, 2013 SCD concluded source control measures were needed to address elevated levels of contaminants in surface soil. PCBs, certain metals, and bis(2-ethylhexyl)phthalate were detected in surface soils greater than JSCS SLVs. While significant direct or indirect pathways to the River were not identified by the *Focused Source Control Evaluation Report and Proposed Source Control Actions* (Bridgewater 2011), DEQ choose to implement a protective cap to limit the potential of offsite migration under current or future conditions. This will decrease the potential of Shredder Residue to impact adjacent sites and further decrease the potential to impact the river. DEQ chose to implement this action due to 1) the elevated levels of PCBs, bis(2-ethylhexyl)phthalate, and metals in surface soils, 2) the close proximity of these contaminants to adjacent sites, and 3) the potential future development of the Property, which if uncontrolled could result in the mobilization of contaminants.

MMGL evaluated alternatives and proposed a source control action to reduce the potential for surface contamination to become a source of contamination from Property to the River.

MMGL's source control alternatives analysis was attached to the April 4, 2012, Addendum to the FSCE Report (Bridgewater 2012). After reviewing the alternatives, DEQ selected Cap-in-Place and Institutional Controls as the most appropriate source control measure.

4.1 Source Control Objective

The objective of the source control action at the SIC-Doane Lake Property is to prevent contaminants, namely PCBs, bis(2-ethylhexyl)phthalate, and metals to become entrained in windblown dust and potentially migrate off the Property and indirectly reach the River and to grade the site to prevent the migration of storm water offsite to the full extent possible.

4.2 Selected Source Control Measure

The selected source control action was outlined DEQ's May 9 2013 Source Control Decision (DEQ 2013) and included the following five source control measures:

1) Re-grading of the Site to ensure consistency of the cap depth and promote stormwater management (retention and infiltration).
2) Excavation of shredder residue impacted soil from the City Right-of-Way along NW Front Avenue and shredder residue consolidation into designated areas prior to capping.
3) Capping shredder residue area with minimum 12 inches of clean fill and vegetation of the cap for erosion control.
4) Cap effectiveness monitoring.
5) MMGL to execute an Easement and Equitable Servitude (E&ES) that contains a soil and cap management plan imposing conditions on any activities that could impact the cap (e.g., any construction).

5.0 Source Control Measure Design

Source control measure design for each of the five source control measures were presented in *Addendum to the Focused Source Control Evaluation Report and, Surface Soil Sampling Results* (Bridgewater 2012) and *Addendum to the MMGL Corp. Doane Lake Source Control Work Plan* (Bridgewater 2014) and are briefly discussed below:

5.1 Site Re-grading.

Clearing and grading the Site to facilitate stormwater collection and retention in the onsite remnant lake. Figure 4 of the Capping and Grading Plan (see Attachment 2), which was presented in *Addendum to the MMGL Corp. Doane Lake Source Control Work Plan* (Bridgewater 2014) shows the design capping and grading plan.

5.2 Excavation of Shredder Residue Impacted Soil from the City Right-of-Way.

Removal of impacted soil from the City Right-of-Way adjacent east of the Property and consolidation of the material on the Site. Excavation performed using visual indicators followed by confirmation sampling prior to backfilling. Figures 1, 2 and 3 of the City Site Development Permit show the area of planed excavation in the City right of way. These figures were presented

in *Addendum to the MMGL Corp. Doane Lake Source Control Work Plan* (Bridgewater 2014) and are included in Attachment 2.

5.3 Capping Shredder Residue Fill Area.

Capping the Site with a minimum of 12-inches of material consisting of 6- inches of quarry material and 6-inches of clean topsoil and construction of a capped perimeter stormwater collection conveyance system that drains to the remnant lake. The soil cap to be seeded with a native grass mix to stabilize the soil and prevent wind and stormwater erosion. Figure 4 of the Capping and Grading Plan (see Attachment 2) which was presented in *Addendum to the MMGL Corp. Doane Lake Source Control Work Plan* (Bridgewater 2014) shows the design capping and grading plan.

5.4 Cap Effectiveness Monitoring.

The *Soil and Cap Management Plan MMGL Corp. Doane Lake Site (Bridgewater 2015b)* presented the cap effectiveness monitoring. Cap effectiveness monitoring monthly until the vegetation becomes established, annual inspections for a period of 5 years and then each 5 years thereafter. Stormwater visual monitoring during rain events performed to evaluate whether surface water from the Doane Lake Remnant is flowing onto the NL/Gould property. If such flow is observed, MMGL to sample the run-off pursuant to a DEQ-approved sampling plan. The *Soil and Cap Management Plan MMGL Corp. Doane Lake Site (Bridgewater 2015b)* presented the cap effectiveness monitoring and is included in Attachment 3. The Soil and Cap Management Plan will be attached to an E&ES to be executed by MMGL following finalization of this SCD.

5.5 Easement and Equitable Servitude.

MMGL to execute an E&ES that contains a soil and cap management plan imposing conditions on any activities that could impact the cap (e.g., any construction). The E&ES to be executed by MMGL following finalization of this SCD.

6.0 Source Control Measure Implementation

Between May 9, 2014 and August 4, 2014, MMGL implemented the source control measures program at the Site. Implementation of the SCMs was done in general accordance with the DEQ approved *Addendum to the MMGL Corp. Doane Lake Source Control Work Plan* (Bridgewater 2014).

The *Source Control Measures Completion Report* (Bridgewater Group 2015a) documented construction activities. Each task was described in detail in the *Source Control Measures Construction Completion Report* (Bridgewater Group 2015a). A brief summary of the remedial activities is provided below.

6.1 City of Portland Right-of-Way Shredder Residual Impacted Soil Removal

Impacted soil from the City Right-of-Way area was excavated and relocated to the central area of the Property to be capped. Based on visual indications and verification sample results during right-of-way excavation, MMGL excavated additional material. Specifically, MMGL had assumed a 2-foot section could be left in place adjacent to the curb. However, shredder residue was observed in several locations at the planned limits of the excavation or verification sample

results detected contamination. Consequently, MMGL excavated up to the edge of the NW Front Avenue curb stating as station 90+00 and continuing to end of excavation at station 395+00. Visual observation indicates shredder residue impacted soil is present to a limited extent beneath NW Front Avenue. A detailed description of the removal of impacted soil and verification sampling is presented in the *SCM Construction Report* (Bridgewater 2015a).

Approximately 2,400 cubic yards of impacted soil was removed and consolidated on the Site. The excavation area extended from the NW Front Avenue curb to about 3-feet inside the MMGL property line (approximately 30-feet to the west) and from the NW Gould property line and south approximately 435-feet about to the Air Liquide Lease line. Shredder residue was typically observed in thin lenses of less than 1 foot in the upper 3 feet and extended from the Property fence line to the curb. However, additional material was removed to 5 feet bgs to ensure compliance with the City Site Development Permit. The excavation area is shown in Figure 3 of the *SCM Construction Report* (Bridgewater 2015a) and is included in Attachment 4.

Following excavation to the target depth (5 feet) and widths, verification side water soil samples were collected at the locations and depths designated in *Addendum to the Focused Source Control Evaluation Report* (Bridgewater 2012). Per the *Right of Way Excavation Verification Sampling Plan*, if soil impacted by shredder residue is left in place, MMGL was required to collect and analyze representative soil sample from these locations to determine if the in-place soil may have to be managed as a hazardous waste if the City removes the soil in the future.

Verification sampling results were presented in Table 1 of *Source Control Measures Completion Report* (Bridgewater Group 2015a), which is included in Attachment 4 along with a verification sample location figure. Once verification sampling and analysis was complete, the excavation was back-filled with approximately 2,918 tons of clean quarry fill material obtained from Knife River quarry at 14545 NW St. Helens Road, Portland, Oregon. The area was graded and contoured to drain away from NW Front Ave, toward the MMGL property and the area was covered with 2 to 3 inches of sandy loam topsoil to facilitate grass seed germination.

6.2 Grading and Capping Property Area

The impacted soil from the City Right-of-Way area was relocated to the central area of the Property to be capped. The southern portion of the Site was, on average, 2 to 3 feet higher in elevation than the northern portion so the high spots were loaded into an earthmover and graded across the northern portion of the Site. Lastly, the stormwater collection swales were constructed to allow for a minimum of 12-inches of clean imported quarry material or topsoil. 4,472 tons of quarry fill material was imported from Knife River quarry at 14545 NW St. Helens Road, Portland Oregon and graded to a minimum 6-inch depth. The quarry material consists of poorly graded silty sand with gravel. Quarry material also was used to raise the grade of the entrance and to build stormwater berms. 4,304 tons of sand loam topsoil was then imported and graded to a minimum 6-inch depth. R.A. Roth Construction & Sons Inc supplied the topsoil. MMGL received DEQ's approval on May 1, 2014, to utilize the topsoil. The laboratory analytical report documenting the non-contaminated nature of the topsoil was provided in the *Source Control Measures Completion Report* (Bridgewater Group 2015a), and is included in Attachment 4. Prior to placing the initial layer of quarry material, a demarcation layer consisting of Pro Silver nonwoven geotextile fabric was installed. Figure 7 of the SCM Construction Report

(Bridgewater 2015a) shows the final cap area and thickness measurements and is included in Attachment 5.

7.0 Performance Monitoring

The SCMP (2015b) outlines requirements for 1) soil management; 2) cap management; 3) cap inspection, maintenance and reporting; and 4) stormwater management system inspections and reporting.

The *2015 Annual Inspection Report* (2015c) presented results for the first year of monitoring required in the SCMP. The report presents results from cap inspections results and stormwater inspection results. The *2015 Annual Inspection Report* is included as Attachment 6.

The report documented that the Site cap is functioning as intended and is in substantial conformance with the design specifications.

8.0 Summary of Source Control Decision

Based on results from the SCM work, MMGL concludes in the *Source Control Measures Completion Report* (Bridgewater 2015a) that the near surface COCs observed at the Site during the source control investigation are controlled and capped and otherwise prevented from impacting off-site properties. The *2015 Annual Inspection Report (2015c)* concludes that the Site cap is functioning as intended and is in substantial conformance with the design specifications. DEQ has reviewed the *Source Control Measures Completion Report* (Bridgewater 2015a) and *2015 Annual Inspection Report* (2015c). Based on a review of these documents DEQ concurs that the SCMs were implemented in accordance with the work plan and performance monitoring has documented they are functioning as intended.

DEQ's proposed source control decision regarding implantation of the selected SCM is that, source control measures implemented at the SIC-Doane Lake Property have adequately address source control for the Site. SCMs have been satisfactorily performed for the Site. Continued monitoring of the cap and site stormwater, per the *SCMP* (Bridgewater Group 2015b) will be enforced by referencing the SCMP in an E&ES for the Property. Following finalization of this source control decision the E&ES will be recorded in the real property record for Multnomah County.

References:

Advanced Geoservices Corp. (2001). Final Report for Early Remedial Action and Remedial Action, Gould Superfund Site, Portland, Oregon. March 19, 2001.

DEQ (2013). *Revised Source Control Decision Report Schnitzer Doane Lake Property*, Oregon Department of Environmental Quality. May 9, 2013.

Bridgewater Group Inc. (2010), *Focused Source Control Evaluation Work Plan*, prepared by Bridgewater Group for Schnitzer Investment Corp., December 9, 2010.

Bridgewater Group Inc. (2011), *Focused Source Control Evaluation Report & Proposed Source Control Actions, Schnitzer Investment Corp. Doane Lake*

Property, prepared by Bridgewater Group for Schnitzer Investment Corp., September 13, 2011.

Bridgewater Group Inc. (2012), *Addendum to the Focused Source Control Evaluation Report, Surface Soil Sampling Results, Schnitzer Investment Corp. Doane Lake Property*, prepared by Bridgewater Group for Schnitzer Investment Corp., April 4, 2012.

Bridgewater Group Inc. (2014). Addendum to the Source Control Action Work Plan, prepared by Bridgewater Group for Schnitzer Investment Corp., May 7, 2014.

Bridgewater Group Inc. (2015a), MMGL Corp. Doane Lake SCM Construction Completion Report, prepared for MMGL by Bridgewater Group. May, 2015.

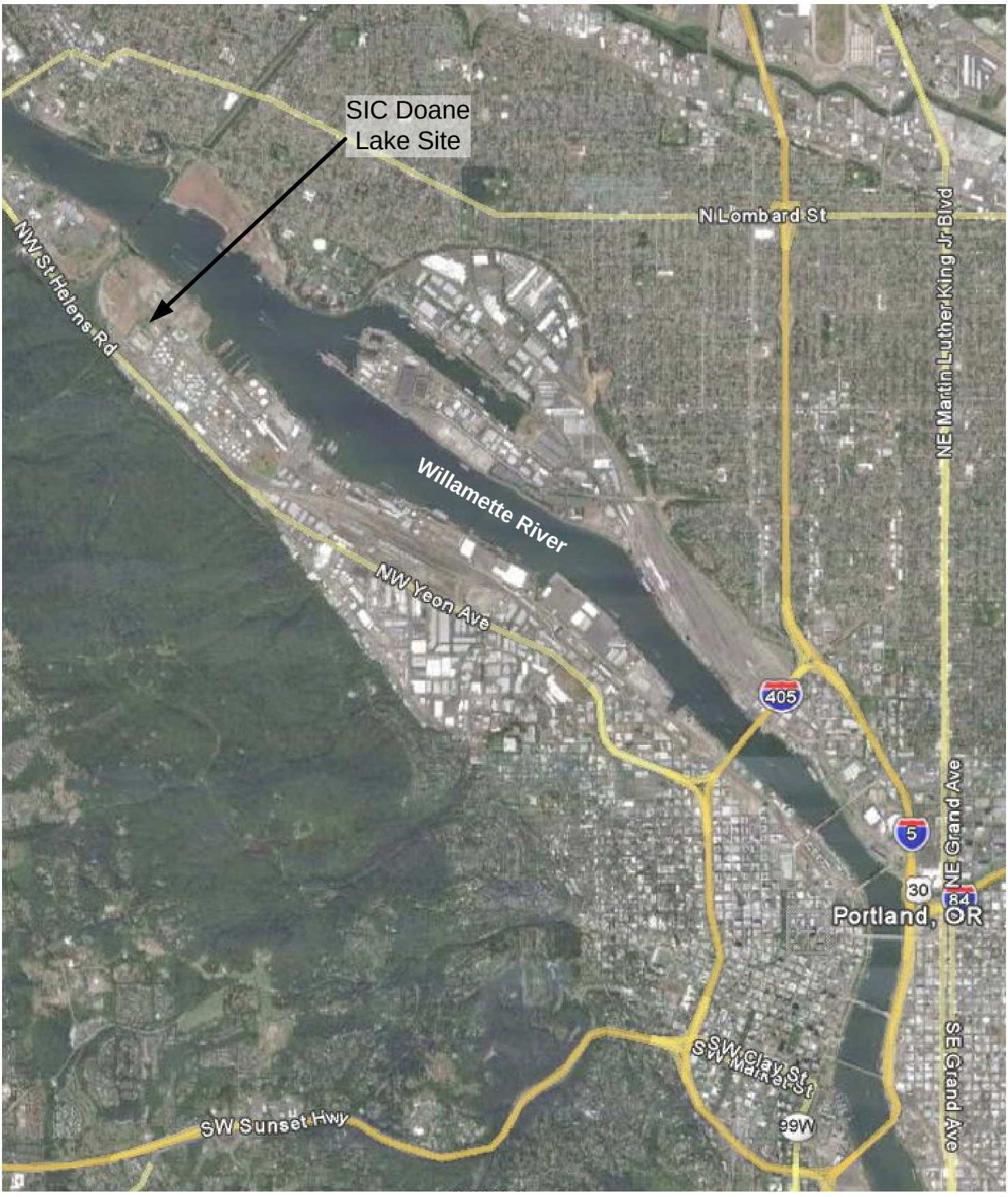
Bridgewater Group Inc. (2015b), *Soil and Cap Management Plan MMGL Corp. Doane Lake Site*, prepared by Bridgewater group for MMBL Corp., June 29, 2015.

Bridgewater Group In. (2015c), *Subject: 2015 MMGL Corp. Doane Lake Annual Inspection Report, ESCI Site ID No. 395*, prepared by Bridgewater group for MMBL Corp., September 24, 2015.

Attachments: Attachment 1 – Select Figures from *Focused Source Control Evaluation Report and Proposed Source Control Actions*
Attachment 2 – Select Design Figures
Attachment 3 – Soil and Cap Management Plan
Attachment 4 – Select Figures from SCM Construction Completion Report
Attachment 5 – Cap Thickness Survey Results
Attachment 6 – 2015 Annual Inspection Report
Attachment 7 – May 9, 2013 *Revised Source Control Decision Report* (attachments not included)

Attachment 1

Select Figures from *Focused Source Control Evaluation Report and Proposed Source Control Actions*



Project North

True North

Approximate Scale

3600 Feet

Base photograph August 2010

Figure 1
Site Location
Schnitzer Investment Corp. Doane Lake

BRIDGEWATER GROUP, INC.

Project North

Approximate Scale

300 Feet

Tax Lot Boundry

Base photograph August 2010

Figure 2
Site Vicinity
Schnitzer Investment Corp. Doane Lake

BRIDGEWATER GROUP, INC.

Project North

Approximate Scale

100 Feet

Base photograph August 2010

Figure 3
Site Layout
Schnitzer Investment Corp. Doane Lake

BRIDGEWATER GROUP, INC.

Project North

Approximate Scale

100 Feet

- Former Air Liquide Lime Pond Area (Approximate)
- SR Fill Area (Approximate)
- Property Boundary (Approximate)
- Currently exposed SR (Approximate)
- Construction / Potential ESCO Slag

Figure 4

SR Fill and Former Lime Pond Areas
Schnitzer Investment Corp. Doane Lake

BRIDGEWATER GROUP, INC.

Attachment 2

Select Design Figures

STORM SEWER MANHOLE
RIM ELEV.: 33.3
INV ELEV.: 19.0

N.W. Front Avenue

Gate 1 – Remove & Replace

Ex. Fence – Remove & Replace

Power Pole

EXISTING CURB

PROPERTY LINE

Excavation Area (Area 1)

TOP OF BERM CENTERLINE

FIRE HYD

MONITORING WELL
BASE: 32.63/TOP: 35.74

MONITORING WELL
BASE: 32.57/TOP: 35.26

MONITORING WELL
BASE: 31.64/TOP: 34.24

MONITORING WELL
BASE: 33.63
TOP: 36.21

BD=33.05

GATE

TB=34.78 TB=34.02 TB=34.23 TB=34.44 TB=34.29 TB=34.20

HI=34.11

FL=33.25 FL=33.35 FL=33.56 FL=33.77 FL=33.21 FL=32.87

SWALE FLOW LINE SLOPE=0.50%

SWALE HIGH POINT

SWALE FLOW LINE SLOPE=0.35%

TP=34.40 TP=34.40

FL=33.11 FL=32.97

FL=32.68 FL=33.35

Fence (New)

FL=32.56 FL=33.05

EDGE OF DRIVEWAY

Ex. Fence Remove

4.0% 4.0% 4.0% 2.0%

A A

B B

FL=32.57 TP=35.19

FL=33.05 FL=32.35

Cap Area (Area 2)

FL=32.27 TP=33.96

FL=33.05

Ex. Fence Remove

FL=32.12 TP=33.73

RIP RAP ENERGY DISSIPATOR
NOTE: USE WELL GRADED ROUGH QUARRY STONE CONSISTING OF 6 INCH MINIMUM DIAMETER ROCK D50.
SEE DETAIL SHEET 4 ENERGY DISSIPATER.

END OF FLOW LINE
FL=32.00

RIP RAP ENERGY DISSIPATER
NOTE: USE WELL GRADED ROUGH QUARRY STONE CONSISTING OF 6 INCH MINIMUM DIAMETER ROCK D50.
SEE DETAIL SHEET 4 ENERGY DISSIPATER.

TP=33.41

EXISTING POND

Gate – 3 (New)

TP=34.27 TP=34.50

Project North

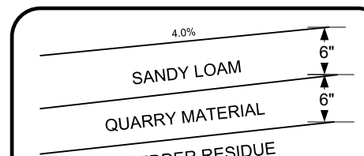
True North

0 20 40
SCALE IN FEET

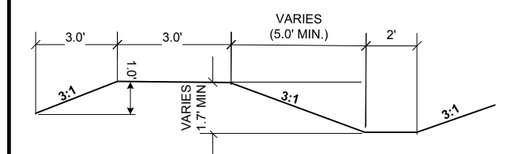
BRIDGEWATER REVISION 5/6/14

Legend

- Six Foot Tall Chain Link Fence topped with barbed wire
- Excavation Area (Area 1)



B – B TYPICAL CAP CROSS SECTION



A – A TYPICAL SWALE CROSS SECTION

Figure 4

Capping & Gradding Plan

DOANE SITE 6/19/12

DRAWING NO. 1

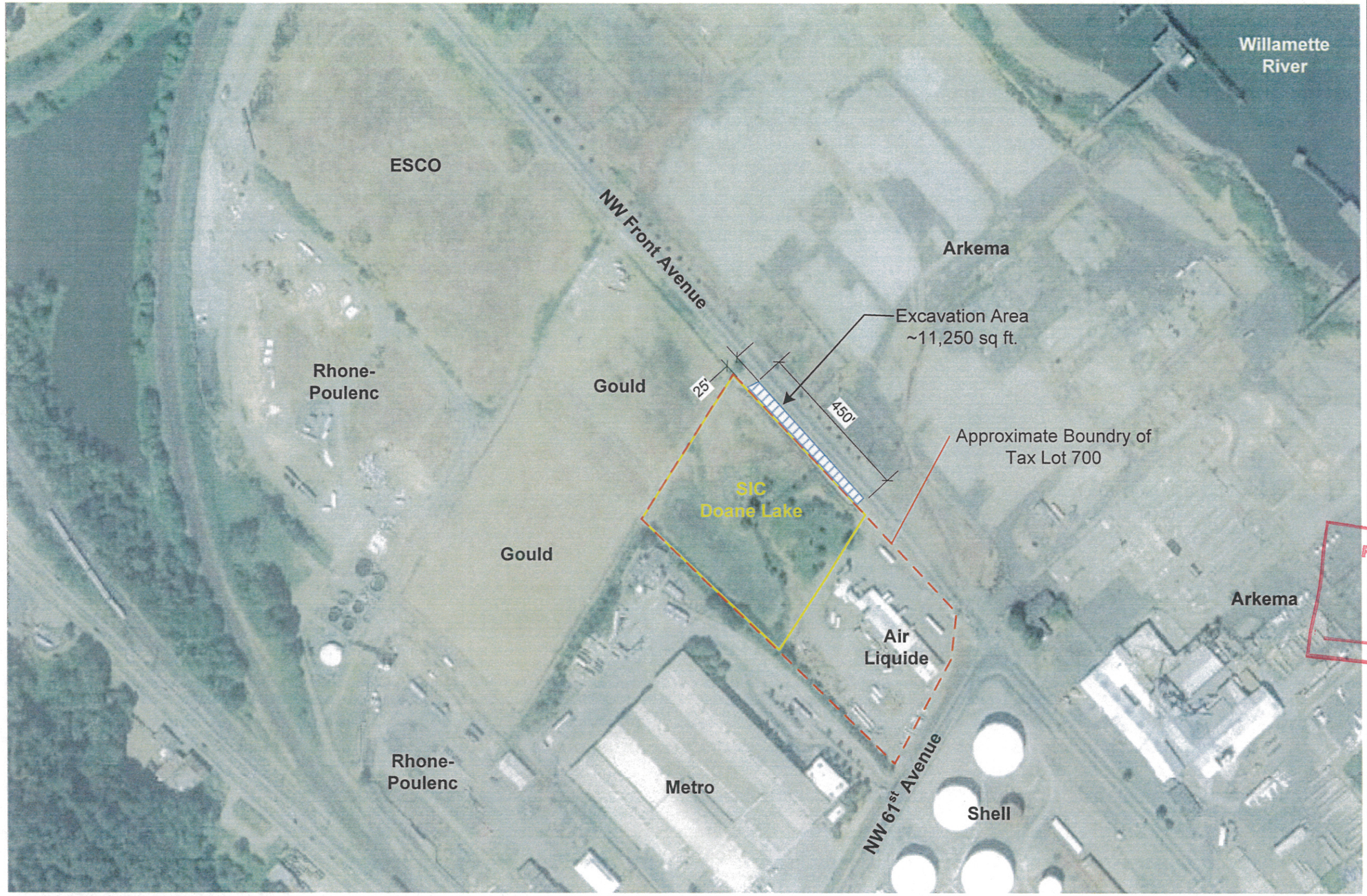
PROJECT NO.

DOANE LAKE CAP
NW FRONT AVENUE
PORTLAND, OREGON

SITE PLAN

TRT ENGINEERING LLC
2636 S.E. MARKET STREET
PORTLAND, OREGON 97214
PHONE (503) 235-7892
FAX (503) 235-7893

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY
DAT. OF ISSUE JUN 2012			TRT			



Project North

Approximate Scale

300 Feet

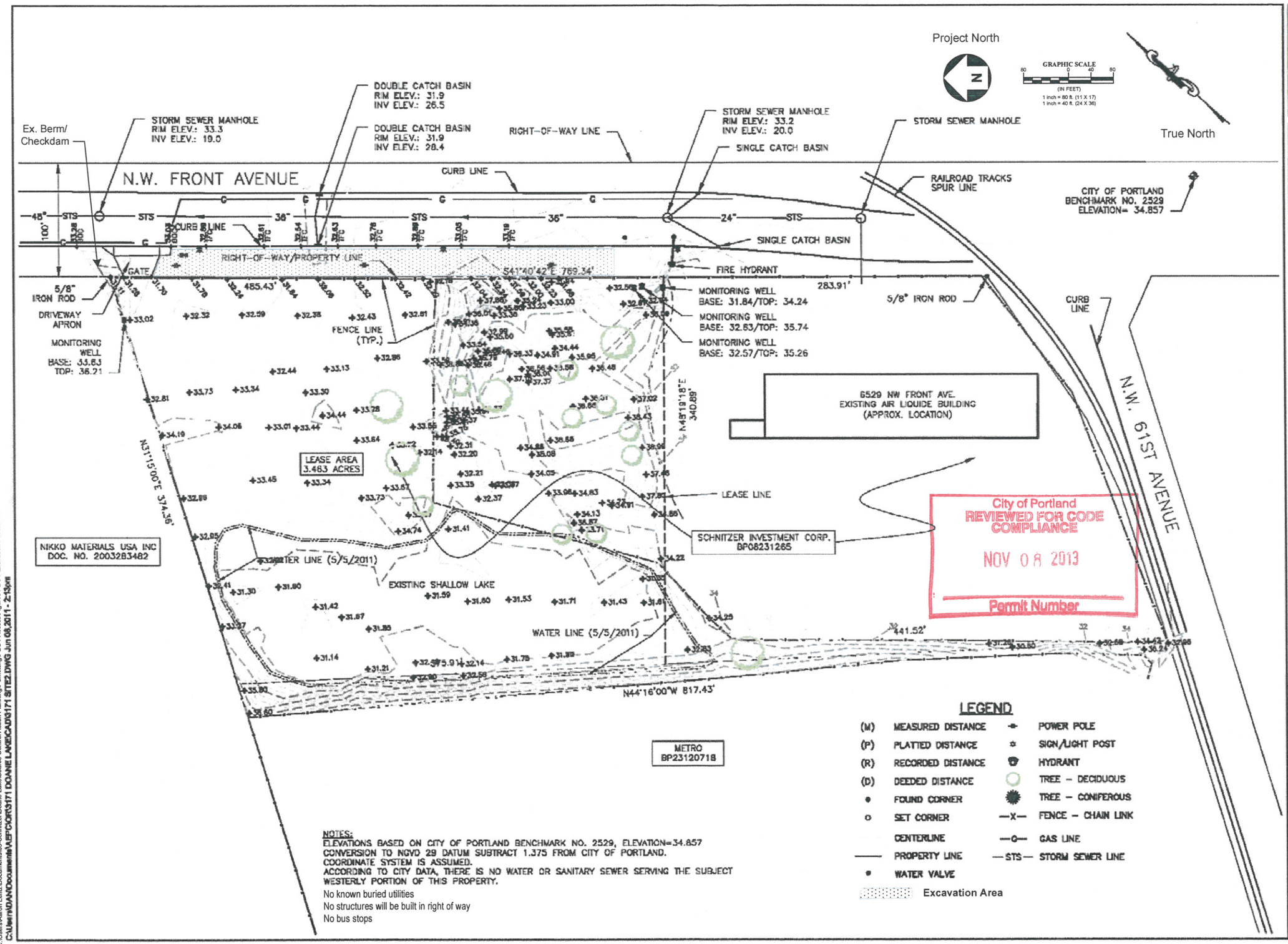
Base photograph August 2010

Excavation Area

Tax Lot Boundry

Figure 1
Right of Way Excavation
6529 NW Front Ave.

BRIDGEWATER GROUP, INC.



NOTES:
ELEVATIONS BASED ON CITY OF PORTLAND BENCHMARK NO. 2529, ELEVATION=34.857
CONVERSION TO NGVD 29 DATUM SUBTRACT 1.375 FROM CITY OF PORTLAND.
COORDINATE SYSTEM IS ASSUMED.
ACCORDING TO CITY DATA, THERE IS NO WATER OR SANITARY SEWER SERVING THE SUBJECT WESTERLY PORTION OF THIS PROPERTY.
No known buried utilities
No structures will be built in right of way
No bus stops

LEGEND

(M)	MEASURED DISTANCE		POWER POLE
(P)	PLATTED DISTANCE		SIGN/LIGHT POST
(R)	RECORDED DISTANCE		HYDRANT
(D)	DEEDED DISTANCE		TREE - DECIDUOUS
•	FOUND CORNER		TREE - CONIFEROUS
o	SET CORNER	—X—	FENCE - CHAIN LINK
	CENTERLINE	—G—	GAS LINE
——	PROPERTY LINE	—STS—	STORM SEWER LINE
	WATER VALVE		
	Excavation Area		

OWNER:

PROJECT MANAGER

BRIDGEWATER GROUP, INC.
4600 SW KRUSE WAY
LAKE OSWEGO, OR 97206
PH: 503.675.5252
FAX: 503.675.1990
CONTACT: AARON LERITZ
aleritz@bridgeh20.com

ENGINEER

ASSOCIATED ENGINEERING, INC
4305 SE HARNEY ST.
PORTLAND, OR 97206
PH: 503-668-7700
CONTACT: DAN BURTON
dburton@aepo-ok.com
2705 N. MAIN STREET
OMAHA, NE 68022
PH: (402) 280-5040
FAX: (402) 280-5045
AE INC. PROJECT #3171

REGISTERED PROFESSIONAL LAND SURVEYOR
OREGON
JANUARY 18, 1977
DANIEL T. BURTON
RENEWS 12/31/11

DRAWN BY:	CHK BY:	APV BY:
DB	TM	TM

SITE NAME:
DOANE LAKE

BRIDGEWATER REF #
SIC-025

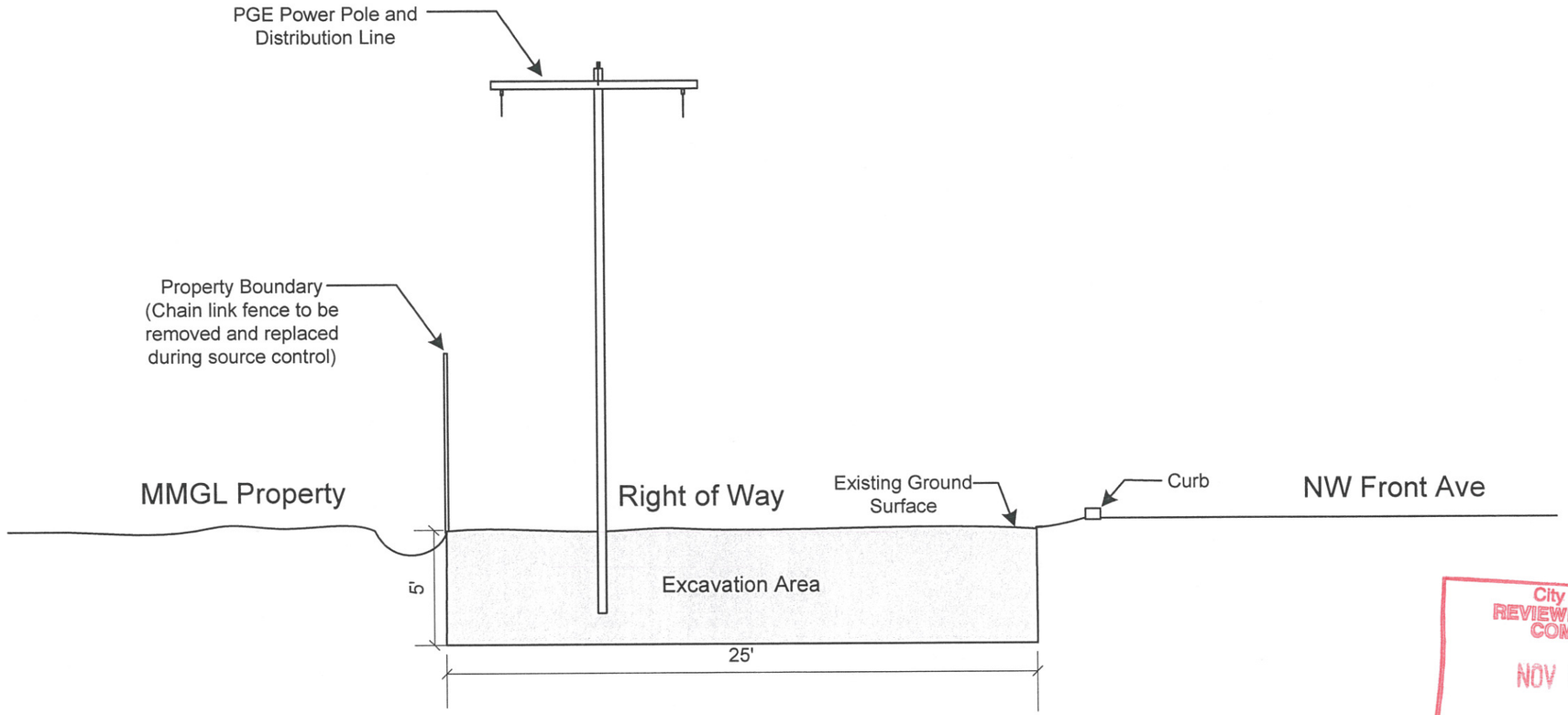
SUBMITTALS

REV.	DATE	DESCRIPTION
A	XX	XX

DRAWING TITLE:
SITE SURVEY

DRAWING NUMBER:
Figure 2

C:\Users\Aaron Leritz\Documents\03-Schnitzer\Doane Lake\Sources Control Action Planning\Permitting\PBOT Access\Figures PBOT Excavation Permit.vsd
C:\Users\DAN\Documents\AE\PDX\3171 DOANE LAKE\CAD\3171 SITE2.DWG Jun 08, 2011 - 2:53pm



Notes:
1. No known buried utilities
2. Excavated soil will be relocated to MMGL property

Figure 3
Excavation Area Profile View
MMGL Corp. Doane Lake Property

BRIDGEWATER GROUP, INC.

Attachment 3

Soil and Cap Management Plan

SOIL AND CAP MANAGEMENT PLAN
MMGL Corp. Doane Lake Site
Portland, Oregon

1.0 Introduction

In the May 9, 2013 Source Control Decision (Oregon DEQ, 2013) (the Action Memo), the Oregon Department of Environmental Quality (DEQ) approved a source control action consisting of soil removal, capping, and institutional controls for the MMGL Corp. (formerly Schnitzer Investment Corp.) Doane Lake Property, 6529 NW Front Avenue, Portland, which includes portions of Tax Lot (TL) 700, Multnomah County, Oregon (the Site). Figure 1 shows the entire tax lot and the approximate cap area within the tax lot. Attachment A provides the legal description and associated map of the cap area.

DEQ required the adoption of institutional controls for the affected areas of the Site to reduce the potential for erosion of soil off-site and, in particular to the Willamette River (which is approximately 1,500 feet to the east), in a manner that protects human health and the environment. These institutional controls will be memorialized in an easement and equitable servitude (EES) for the Site, which will be recorded in the real property records for Multnomah County.

This Soil and Cap Management Plan (SCMP) for the Site will be referenced in the EES for the property. As outlined below, this SCMP imposes affirmative obligations and restrictions on the "Cap Area," described in Attachment A. This SCMP will be provided by MMGL to any tenant occupying the Cap Area and to any contractors conducting work that may involve excavation or grading in the Cap Area.

This SCMP may be modified as necessary to accommodate future conditions, but changes must be reviewed and approved by DEQ.

2.0 Background and Source Control Action

The current and reasonably likely future land use for the majority of the Site (and areas to the north and south of the Site) will remain industrial. The Site and surrounding properties are part of the Guild's Lake Industrial Sanctuary, and any future development of the Site is anticipated to be consistent with that zoning.

As required in the Action Memo, MMGL conducted a source control action at the Site. The action is documented in the Source Control Measures Completion Report, May 2015. The source control action included placement of an engineered cap in the area identified in Figure 2 as the Cap Area. The cap consists of a demarcation layer overlaid by 12 inches (compacted thickness) of clean fill covering the demarcation layer. The cap is generally graded consistent with the engineered cap design as shown in Figure 2. A Grading and Cap As-Built drawing is provided in Attachment A. Specifics regarding the Site and the source control action are described in the April 4, 2012, *Addendum to the Focused Source Control Evaluation Report.* The ranges of concentrations of Site constituents of concern (COCs) left in place under the cap are reported in Attachment B.

3.0 Soil and Cap Management

3.1 Soil Management

Any soil that is exposed or excavated through activities that occur in the Cap Area, including digging, drilling, scraping, or other disturbance below the cap, must be managed as described in this section.

- Excavation of soils within the Cap Area or any work with the potential to penetrate the cap will only occur after the contractor or entity conducting such excavation or activities has met with MMGL's or the current owner's representative, reviewed this SCMP, and incorporated appropriate information from this SCMP into the contractor's health and safety plan. The health and safety plan will provide worker protection procedures and equipment appropriate for the nature of the work and the site conditions as described in Section 2 and, as appropriate, will include using qualified personnel who are trained and meet the standards under the Hazardous Waste Operations and Emergency Response Standard (HAZWOPER) 29 Code of Federal Regulations 1910.1209.

- Excavation and soil management in the Cap Area shall be performed in a manner that prevents surface water or rainfall run-on/runoff, spillage of excavated material, or any contamination of the cap. Options for handling excavated soil include placing the excavated soil in a covered container or roll-off box, or placing the soil on bermed plastic sheeting with a plastic cover at the end of each working day and during periods of precipitation. Any plastic sheeting used should be a minimum thickness of 12 mils. To prevent the spread or tracking of contamination, all excavation equipment that has been exposed to contaminated soil in the Cap Area shall first be decontaminated prior to moving it to any other area of the Site. Decontamination procedures shall include, as necessary, wheel washes and dry brushing the excavation bucket of a backhoe between excavation locations.

- Excavated soil from the Cap Area can be placed anywhere within the Cap Area under a cap that meets the specifications outlined in Figure 2 and Attachment A without sampling. If the Cap Area is expanded to accommodate excavated soil, this SCMP must be amended to document the addition to the Cap Area and the SCMP amendment must be approved by DEQ as described in Section 4.0, *Amendments to this SCMP*.

- Excavated soil may be placed anywhere within the Cap Area without capping if the soil is characterized and all Site COCs are below both the screening values applied in Table 3 of the April 4, 2012, *Addendum to the Focused Source Control Evaluation Report* and DEQ's Risk Based Concentrations for Occupational Receptors as may be amended from time to time or if otherwise approved by DEQ. For such characterization, one composite sample will be collected per 100 cubic yards of excavated material. Each composite soil sample must consist of a series of aliquots taken from the stockpile or drop box in random locations (surface and depth) and combined to form a composite sample that represents the excavated material.

- If soil from within the Cap Area requires offsite disposal, it must be properly characterized, profiled, and disposed of at a facility that is permitted to accept such materials.

3.2 Cap Management

The cap will be maintained consistent with the specifics set forth in Figure 2 and Attachment A (engineered cap design), except that, with DEQ prior approval:

- The cap may be penetrated for short term activities that do not impact the integrity of the cap in a material way (e.g., for piling, driving, or installing footings/foundations), provided that protocols are followed to ensure the performance of the cap during the activity and that the cap is fully restored at the conclusion of the activity according to substantial conformance with the specifications set forth in Figure 2 and Attachment A or as otherwise approved by DEQ;

- Materials may be placed over the cap (e.g., for preloading) as long as the drainage characteristics specified in Figure 2 and Attachment A are maintained and, if the materials are removed, at least a 12-inch soil cap remains that is consistent with the specifications noted in Figure 2 and Attachment A.

- If any activities occur on the cap that have the potential to impact cap performance, such access areas will be covered with crushed rock or similar material to protect the cap.

- If utilities need to be placed in the Cap Area, a trench will be excavated sufficient to provide one foot of clean fill below the proposed utility line, a demarcation layer will be placed at the bottom and sides of the trench and the trench will be backfilled with clean fill. All excavated soils will be handled as described in Section 3.1.

- If landscaping is installed over the cap, additional topsoil will be placed over cap sufficient to act as a planting layer. This will ensure that the 12-inch cap is maintained.

- The demarcation layer may be breached to allow penetration of roots of larger plantings if Attachment A is amended to note the locations of such plantings. Any subsequent activity below the demarcation layer (e.g., to remove the planting) will follow the same protocols established above for short-term activities that penetrate the cap. If the planting is removed, an overlapping demarcation layer will be reinstalled.

- The cap may be replaced by a cap that provides equal or better performance (e.g. by asphalt or concrete placed over 4 inches or more of clean soil) so long as the grading specified in Attachment A is maintained and so long as the inspections and reporting as described in Section 3.3 continue to be provided. The proposed replacement cap material must be approved by DEQ prior to implementation.

- For the duration of any such activities enumerated above, measures will be taken to minimize erosion and/or exposure consistent with the City of Portland Erosion Control Manual.

- The cap may be breached for other purposes with approval from DEQ.

3.3 Cap Inspection, Maintenance and Reporting

The cap will be inspected and maintained and reports will be provided to DEQ, as follows:

- MMGL or the current owner will promptly notify DEQ of any condition or occurrence at the Site that does not conform with provisions of the EES and Attachment A (the engineered cap design) or that otherwise compromises the integrity and/or function of the cap.

- For the first five years after the source control action is completed, the cap will be inspected annually for substantial conformance with the design specifications set forth in Figure 2 and Attachment A, and MMGL will prepare and submit an annual report to DEQ by October 1. The reports will include sufficient detail to allow DEQ to determine substantial compliance with EES requirements and Attachment A specifications and will include a photographic log that supports the report's narrative.

- Every five years thereafter, the cap will be inspected one time for substantial conformance with the design specifications set forth in Figure 2 and Attachment A, and MMGL will prepare and submit its report to DEQ by October 1.

- Any deficiencies noted in such inspections or otherwise identified will be corrected, and a report of the observed deficiencies and the corrective actions implemented will be provided to DEQ.

- Upon acceptance by DEQ of six inspection reports , MMGL or the current owner may request in writing that DEQ re-evaluate the scope and frequency of inspections and reporting. No change in the scope or frequency of the inspections or reports will be made without written approval by DEQ.

3.4 Stormwater Management System Inspections and Reporting

The stormwater management system (stormwater swale features) will be inspected to verify stormwater is not discharging from the Site. Inspections will be conducted and reports provided to DEQ, as follows:

- Twice per month inspections will be performed while the DEQ Construction General Stormwater Permit 1200-C is active.

- Stormwater inspections will be performed four times per year from the period in which the 1200-C permit is terminated through the remaining first five years after the source control action is completed.

- Upon acceptance by DEQ of five years of stormwater inspections (five years from the completion of the source control measures), MMGL or the current owner may request in writing that DEQ re-evaluate the scope and frequency of stormwater inspections and reporting.

- The results of stormwater inspections will be provided to DEQ with the Cap Inspection

and Maintenance Report by October 1 of each year (Section 3.3 above).

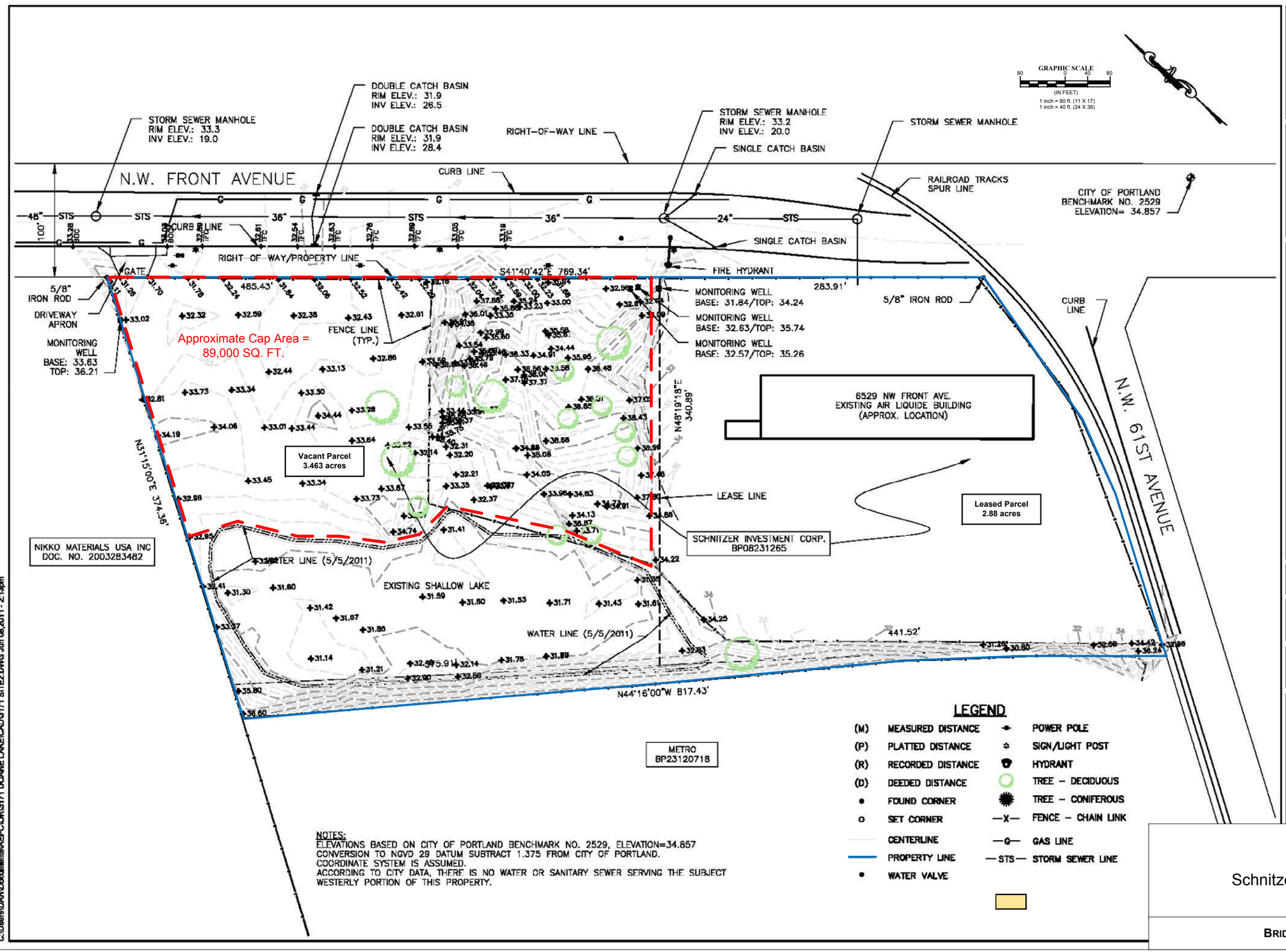
4.0 Amendment to this SCMP

Any amendments to this SCMP must be made in writing and must be approved by DEQ.

Figures

Figure 1 Property Boundary

Figure 2 Capping and Grading Plan



OWNER:

PROJECT MANAGER

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FAX: 503.675.1980
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dburton@aepo-cis.com
—
2705 N. MAIN STREET
OMAHA, NE 68022
PH: (402) 289-5040
FAX: (402) 289-5045
AE INC. PROJECT #3171

REGISTERED PROFESSIONAL LAND SURVEYOR
OREGON
JANUARY 15, 1987
DANIEL T. BURTON
2265
RENEWS 12/31/11

DRAWN BY:	CHK BY:	APV BY:
DB	TM	TM

SITE NAME:

DOANE LAKE

BRIDGEWATER REF #

SIC-025

SUBMITTALS

REV.	DATE	DESCRIPTION
A	XX	XX

Figure 1
Property Boundary
Schnitzer Investment Corp. Doane Lake
Survey Date:

BRIDGEWATER GROUP, INC.

STORM SEWER MANHOLE
RIM ELEV.: 33.3
INV ELEV.: 19.0

N.W. Front Avenue

Gate 1 – Remove & Replace

Ex. Fence – Remove & Replace

Power Pole

EXISTING CURB

PROPERTY LINE

Excavation Area (Area 1)

TOP OF BERM CENTERLINE

FIRE HYD

MONITORING WELL
BASE: 32.63/TOP: 35.74

MONITORING WELL
BASE: 32.57/TOP: 35.26

MONITORING WELL
BASE: 31.64/TOP: 34.24

MONITORING WELL
BASE: 33.63
TOP: 36.21

BD=33.05
GATE
HI=34.11
TP=34.40
TP=34.40
TP=35.19
TP=33.96
TP=33.73
TP=33.41
TP=34.27
TP=34.50

TB=34.78
TB=34.02
TB=34.23
TB=34.44
TB=34.29
TB=34.20

FL=33.25
FL=33.35
SWALE FLOW LINE
SLOPE=0.50%
FL=33.56
SWALE HIGH POINT
FL=33.77
SWALE FLOW LINE
SLOPE=0.35%
FL=33.21
FL=32.87
FL=33.11
FL=32.97
FL=32.57
FL=32.27
FL=32.12
FL=32.68
FL=33.35
FL=32.56
FL=33.05
FL=33.05
FL=32.35
FL=33.05
FL=32.00

Fence (New)

EDGE OF DRIVEWAY

Ex. Fence Remove

Cap Area (Area 2)
(Expanded Area Constructed)

Cap Area (Area 2)
(Proposed)

Cap Area (Area 2)
(Constructed)

RIP RAP ENERGY DISSIPATOR
NOTE: USE WELL GRADED ROUGH QUARRY STONE CONSISTING OF 6 INCH MINIMUM DIAMETER ROCK D50.
SEE DETAIL SHEET 4 ENERGY DISSIPATER.

END OF FLOW LINE

RIP RAP ENERGY DISSIPATER
NOTE: USE WELL GRADED ROUGH QUARRY STONE CONSISTING OF 6 INCH MINIMUM DIAMETER ROCK D50.
SEE DETAIL SHEET 4 ENERGY DISSIPATER.

Gate – 3 (New)

EXISTING POND

A
A
B
B

2.0%
4.0%
4.0%
4.0%
4.0%

Project North

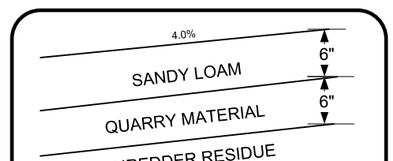
True North

0 20 40
SCALE IN FEET

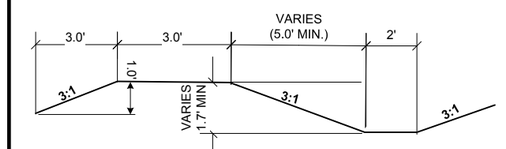
BRIDGEWATER REVISION 5/6/14

Legend

- Boundary of Cap
- Six Foot Tall Chain Link Fence topped with barbed wire
- Excavation Area (Area 1)



B – B TYPICAL CAP CROSS SECTION



A – A TYPICAL SWALE CROSS SECTION

DOANE SITE 6/19/12

DRAWING NO. 1
PROJECT NO.

DOANE LAKE CAP
NW FRONT AVENUE
PORTLAND, OREGON

SITE PLAN

TRT ENGINEERING LLC
2636 S.E. MARKET STREET
PORTLAND, OREGON 97214
PHONE (503) 235-7892
FAX (503) 235-7893

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY
	DATE OF ISSUE JUN 2012		TRT	TRT		

Figure 2

Capping & Gradding Plan

Attachment A

Cap Legal Description, Cap Area, and As-Built Drawing

All County Surveyors & Planners, Inc.

PO Box 955 • Sandy, Oregon 97055 • Phone: 503-668-3151 • Fax: 503-668-4730

"CAP" LEGAL DESCRIPTION

September 10, 2014
JOB NO. 14-087

A TRACT OF LAND IN THE NORTHEAST QUARTER AND THE SOUTHEAST QUARTER OF SECTION 13, TOWNSHIP 1 NORTH, RANGE 1 WEST OF THE WILLAMETTE MERIDIAN, IN THE CITY OF PORTLAND, MULTNOMAH COUNTY, OREGON, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT A 5/8 INCH IRON ROD FOUND AT THE INTERSECTION OF THE NORTHERLY RIGHT OF WAY LINE OF N.W. 61ST AVENUE (VARIABLE WIDITH) WITH THE INTERSECTION OF THE WESTERLY RIGHT OF WAY LINE OF N.W. FRONT AVENUE (100 FEET WIDE), SAID 5/8 INCH IRON ROD BEING THE MOST EASTERLY CORNER OF PARCEL II OF THAT TRACT OF LAND CONVEYED TO SCHNITZER INVESTMENT CORP., BY DEED RECORDED NOVEMBER 11, 1971 IN BOOK 823, PAGE 1265, MULTNOMAH COUNTY DEED RECORDS; THENCE ALONG THE NORTHEASTERLY LINE OF SAID SCHNITZER TRACT, BEING THE WESTERLY RIGHT OF WAY LINE OF N.W. FRONT AVENUE, NORTH 41°40'42" WEST, A DISTANCE OF 768.29 FEET TO THE **TRUE POINT OF BEGINNING,** BEARING SOUTH 41°40'42" EAST A DISTANCE OF 1.05 FEET FROM A 5/8 INCH IRON ROD FOUND AT THE MOST NORTHERLY CORNER OF SAID SCHNITZER TRACT; THENCE SOUTH 41°40'42" EAST ALONG LAST-SAID LINE A DISTANCE OF 438.89 FEET TO A POINT; THENCE SOUTH 48°17'33" WEST A DISTANCE OF 204.24 FEET TO A POINT; THENCE SOUTH 87°02'05" WEST A DISTANCE OF 11.60 FEET TO A POINT; THENCE NORTH 53°54'46" WEST A DISTANCE OF 10.26 FEET TO A POINT; THENCE NORTH 29°24'09" WEST 23.04 FEET TO A POINT; THENCE NORTH 28°13'19" WEST A DISTANCE OF 47.05 FEET TO A POINT; THENCE NORTH 35°04'57" WEST A DISTANCE OF 22.82 FEET TO A POINT; THENCE NORTH 80°16'37" WEST A DISTANCE OF 15.55 FEET TO A POINT; THENCE NORTH 26°08'01" WEST A DISTANCE OF 19.22 FEET TO A POINT; THENCE NORTH 85°46'55" WEST A DISTANCE OF 42.76 FEET TO A POINT; THENCE NORTH 50°15'26" WEST A DISTANCE OF 30.30 FEET TO A POINT; THENCE NORTH 38°25'35" WEST A DISTANCE OF 75.24 FEET TO A POINT; THENCE NORTH 38°07'56" WEST A DISTANCE OF 56.93 FEET TO A POINT; THENCE NORTH 41°39'28" WEST A DISTANCE OF 37.47 FEET TO A POINT THAT IS 1 FOOT SOUTHEASTERLY FROM, WHEN MEASURED AT RIGHT ANGLES TO, THE NORTHWESTERLY LINE OF SAID SCHNITZER TRACT; THENCE NORTH 31°15'00" EAST, PARALLEL WITH AND 1 FOOT SOUTHEASTERLY FROM THE NORTHWESTERLY LINE OF SAID SCHNITZER TRACT, A DISTANCE OF 238.54 FEET TO THE **TRUE POINT OF BEGINNING.**

THE AREA ENCOMPASSED BY THIS DESCRIPTION IS
89,347 SQUARE FEET, MORE OR LESS.

DOANE LAKE CAP AREA MAP

LOCATED IN SECTION 13,
T1N R1W, W.M.
PART OF TAX LOT 700
MAP 01N01W13
PORTLAND, OREGON

STORM SEWER MANHOLE
RIM ELEV.: 33.3
INV ELEV.: 19.0

DOUBLE CATCH BASIN
RIM ELEV.: 31.9
INV ELEV.: 28.4

RIGHT-OF-WAY LINE

STORM SEWER MANHOLE
RIM ELEV.: 33.2
INV ELEV.: 20.0

SINGLE CATCH BASIN

CURB LINE

N.W. FRONT AVENUE

48" STS 36" STS 36" STS 24" STS

G G G G

INSTALLED BARRIER

CURB LINE

NW FRONT AVE

SINGLE CATCH B

TRUE POINT OF BEGINNING
CAP DESCRIPTION

RIGHT-OF-WAY/PROPERTY LINE

FENCE LINE (TYP.)

GATE

S41°40'42"E 438.89'

S41°40'42"E 769.34'

370 TO NW FRONT AVE

FIRE HYDRANT

283

S41°40'42"E 1.05'
5/8" IRON ROD

485.43'

MONITORING WELL
BASE: 31.84/TOP: 34.24

MONITORING WELL
BASE: 32.63/TOP: 35.74

MONITORING WELL
BASE: 32.57/TOP: 35.26

DRIVEWAY APRON

MONITORING WELL
BASE: 33.63
TOP: 36.21

N31°15'00"E 238.54'

N31°15'00"E 374.36'

CAP AREA = 89,347 SQUARE FEET ±

S48°17'33"W 204.24'

N48°19'18"E
340.89'

AIR LIQUIDE AMERICA
CORPORATION
6529 NW FRONT AVE
PORTLAND, OR 97210

LEASE LINE

NIKKO MATERIALS USA INC
DOC. NO. 2003283482

N41°39'28"W 37.47'

N38°07'56"W 56.93'

N38°25'35"W 75.24'

N50°15'26"W 30.30'

N85°46'55"W 42.76'

N26°08'01"W 19.22'

N80°16'37"W 15.55'

N35°04'57"W 22.82'

N28°13'19"W 47.05'

N29°24'09"W 23.04'

S87°02'05"W 11.60'

N53°54'46"W 10.26'

NIKKO MATERIALS USA INC
DOC. NO. 2003283482

SCHNITZER INVESTMENT CORP.
BP08231265

WATER LINE (5/5/2011)

EXISTING SHALLOW LAKE

WATER LINE (5/5/2011)

34.50 TOP/BERM

34.43 TOP/BERM

34.20 TOP/BERM

375.91'

N44°16'00"W 817.43'

METRO
BP23120718

GRAPHIC SCALE
60 0 30 60
(IN FEET)
1 inch = 60 ft. (11 x 17)
1 inch = 30 ft. (24 x 36)

LEGEND

(M)	MEASURED DISTANCE		POWER POLE
(P)	PLATTED DISTANCE		SIGN/LIGHT POST
(R)	RECORDED DISTANCE		HYDRANT
(D)	DEEDED DISTANCE		TREE - DECIDUOUS
	FOUND CORNER		TREE - CONIFEROUS
	SET CORNER	—X—	FENCE - CHAIN LINK
	CENTERLINE	—G—	GAS LINE
	PROPERTY LINE	—STS—	STORM SEWER LINE
	WATER VALVE		WATER LINE (5/5/2011)
	POWER POLE		
	POWER POLE WITH GUY WIRE		
	SURVEY POINT SHOWING FINISH ELEVATION		
	CONTOUR LINE (POST-CAP)		
	SURVEY POINT SHOWING SPOT ELEVATION AND DESCRIPTION		
31.50	SURVEY POINT SHOWING PRE-CAP ELEVATION		

REGISTERED
PROFESSIONAL
LAND SURVEYOR

OREGON
JANUARY 23, 1990
DALE L. HULT
2427

RENEWS 07/01/15

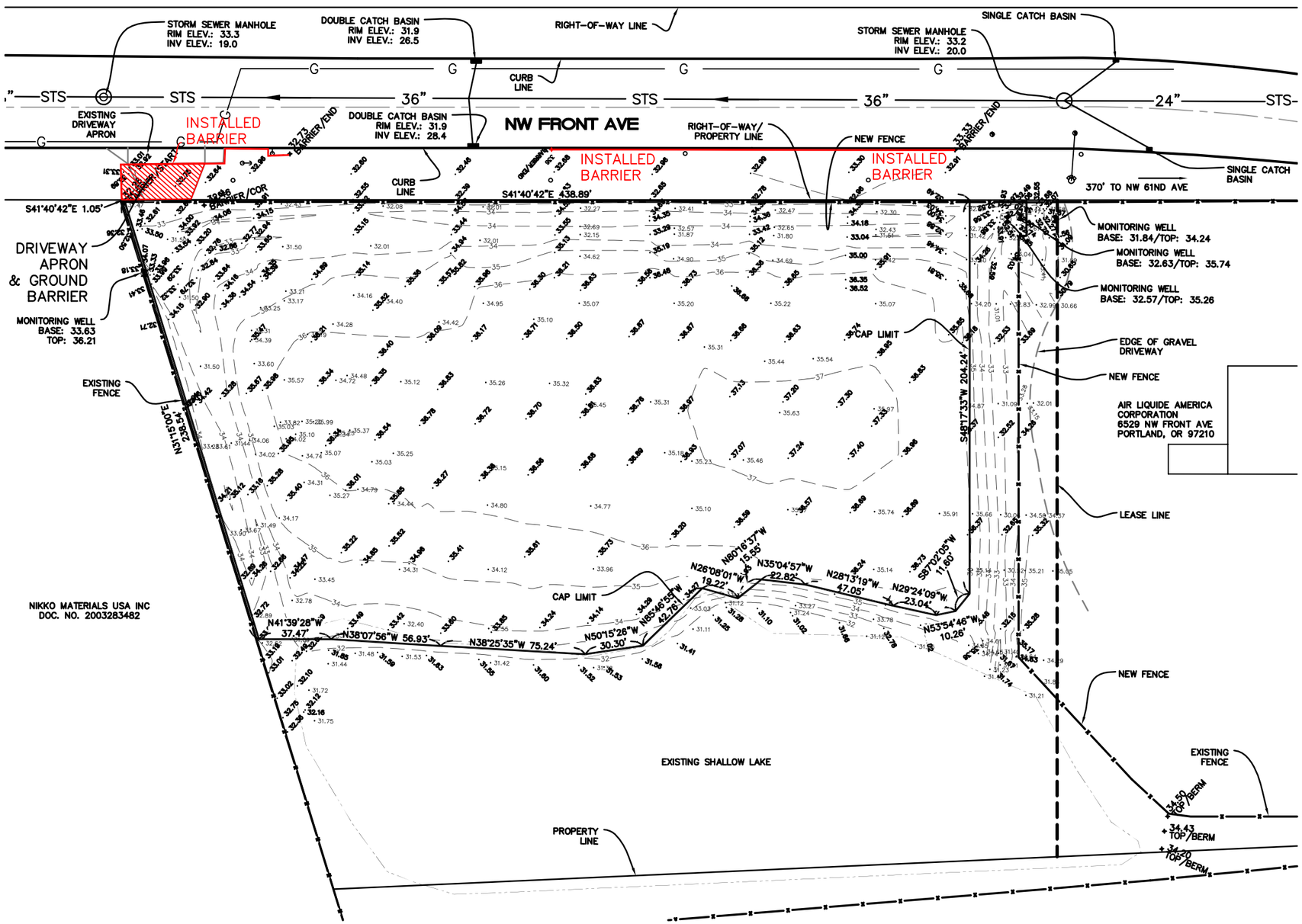
CLIENT: BRIDGEWATER GROUP INC.

All County
Surveyors & Planners, Inc.
Surveying, Planning and Civil Engineering
P.O. Box 955 Sandy, OR 97055
Phone: (503) 668-3151
Fax: (503) 668-4730

14-087 Doane Lake.DWG DATE OF PLOT: 9-10-2014

DOANE LAKE AS-BUILT MAP

LOCATED IN SECTION 13,
T1N R1W, W.M.
PART OF TAX LOT 700
MAP 01N01W13
PORTLAND, OREGON



GRAPHIC SCALE

60 0 30 60

(IN FEET)
1 inch = 60 ft. (11 x 17)
1 inch = 30 ft. (24 x 36)

LEGEND

(M)	MEASURED DISTANCE		POWER POLE
(P)	PLATTED DISTANCE		SIGN/LIGHT POST
(R)	RECORDED DISTANCE		HYDRANT
(D)	DEEDED DISTANCE		TREE – DECIDUOUS
●	FOUND CORNER		TREE – CONIFEROUS
○	SET CORNER	—X—	FENCE – CHAIN LINK
----	CENTERLINE	—G—	GAS LINE
———	PROPERTY LINE	—STS—	STORM SEWER LINE
	WATER VALVE	----------	WATER LINE (5/5/2011)
	POWER POLE		
	POWER POLE WITH GUY WIRE		
.XXX	SURVEY POINT SHOWING FINISH ELEVATION		
	CONTOUR LINE (POST–CAP)		
XXX.XX XXX	SURVEY POINT SHOWING SPOT ELEVATION AND DESCRIPTION		
· 31.50	SURVEY POINT SHOWING PRE–CAP ELEVATION		

Figure 4
As-Built Drawing
Doane Lake Source Control Action
MMGL Corp.

REGISTERED PROFESSIONAL LAND SURVEYOR
OREGON
JANUARY 23, 1990
DALE L. HULT
2427
RENEWS 07/01/15

CLIENT: BRIDGEWATER GROUP INC.

Surveyors & Planners, Inc.
Surveying, Planning and Civil Engineering
P.O. Box 955 Sandy, OR 97055
Phone: (503) 668-3151
Fax: (503) 668-4730

14-087 Doane Lake.DWG DATE OF PLOT: 9-10-20

Attachment B

Ranges of concentrations (Tables 2, 10, and 11, excerpted from Source Control Decision Document, May 2013)

TABLE 2
Summary of Soil Analytical Testing - Polychlorinated Biphenyl's
SIC Doane Lake Property

Location ID	Sample ID	Sample Date	Laboratory Analytical Testing Results (mg/kg)									
			Polychlorinated Biphenyls									
			Aroclor									
			1016	1221	1232	1242	1248	1254	1260	1262	1268	Total Aroclor
Reference Levels:												
Oregon DEQ PH JSCS SLV[1] -->			0.53	NV	NV	NV	1.5	0.3	0.2	NV	NV	0.00039
			-	-	-	-	-	-	-	-	-	
August 30, 1990 ICF Kaiser Engineers, Inc. "Old Fluff Pile"[2]												
-	1	16-Aug-90				det		det		det		41.
-	2	16-Aug-90				det		det		det		33.
-	3	16-Aug-90				det		det		det		31.
-	4	16-Aug-90				det		det		det		41.
-	5	16-Aug-90						det				68.
-	6	16-Aug-90				det		det	det			63.
-	7	16-Aug-90				det		det		det		27.
-	8	16-Aug-90				det		det		det		35.
-	9	16-Aug-90						det		det		110.
-	10	16-Aug-90				det		det			det	38.
May 1995 EG&G Environmental Sampling Event[2]												
-	1	May-95				3.		16.	U	5.		23.
-	2	May-95				3.		28.	U	11.		43.
-	3	May-95				4.		28.	U	19.		51.
-	4	May-95				10.		20.	U	6.		36.
-	5	May-95				13.		38.	U	1.		52.
-	22 (5 dup)	May-95				18.		20.	U	U		55.
-	6	May-95				12.		29.	11.	U		51.
-	21 (6 dup)	May-95				6.		80.	21.	U		107.
-	7	May-95				37.		25.	U	11.		73.
-	8	May-95				18.		17.	U	13.		47.
-	9	May-95				2.		36.	10.	U		48.
-	10	May-95				5.		25.	11.	U		41.
-	11	May-95				98.		8.	14.	U		120.
-	12	May-95				24.		9.	U	16.		49.
-	13	May-95				5.		12.	15.	U		32.
-	14	May-95				5.		36.	21.	U		63.
-	15	May-95				23.		23.	9.	U		55.
-	16	May-95				13.		15.	U	12.		40.
-	17	May-95				U		42.	10.	U		52.
-	18	May-95				2.		23.	10.	U		34.
-	19	May-95				30.		32.	9.	U		72.
-	20	May-95				11.		11.	22.	U		45.
-	25	May-95				0.019		0.038	0.032	U		0.08
-	27	May-95				U		62.	12.	U		73.
-	28	May-95				6.		11.	U	9.		25.
-	30	May-95				10.		20.	6.	U		37.
-	31	May-95				65.		55.	14.	U		130.
-	32	May-95				21.		14.	7.	U		43.
-	33	May-95				2.		24.	10.	U		36.
-	34	May-95				20.		18.	U	9.		48.
-	35	May-95				29.		19.	U	13.		60.
-	36	May-95				27.		5.	11.	U		43.
-	42 (36 dup)	May-95				34.		11.	12.	U		57.
-	37	May-95				27.		24.	10.	U		61.
-	38	May-95				37.		132.	26.	U		190.
-	39	May-95				1.		9.	6.	U		16.
-	40	May-95				31.		10.	10.	U		52.
-	99	May-95				3.		11.	U	11.		56.

Note:

[1] Oregon DEQ Joint Source Control Strategy (JSCS) - Table 3-1, 07/16/07 Revision

[2] To determine whether the PCBs exceeded the 50 mg/kg TSCA criteria, EG&G Environmental applied a statistical "cut-off value" method as explained in Sampling Guidance for Scrap Metal Shredders—Field Manual (USEPA, 1993, Report No. EPA-747-R-93-009). Based on that analysis, although the average concentration of PCBs in the fluff was 56 mg/kg, the 50 mg/kg regulatory level was adjusted pursuant to that guidance to a 59 mg/kg "cut-off value." Hence, the fluff, if removed for disposal, would not be considered to be a PCB remediation waste.

det = detected
DEQ = Department of Environmental Quality
EPA = U.S. Environmental Protection Agency
mg/kg = milligrams per kilogram
U = not detected above laboratory reporting limit, indicated where available

TABLE 10

Summary of Soil Analytical Testing - Total Metals, Source Control Investigation

SIC Doane Lake Property

Location ID	Sample ID	Sample Date	Laboratory Analytical Testing Results Total Metals (EPA 6010C unless noted) Antimony	Barium	Cadmium	Chromium	Copper	Lead	Manganese	Mercury (6020 ICPMS)	Selenium	Silver	Zinc
Reference Levels:													
Oregon DEQ JSCS SLV[1,2]													
Toxicity (MacDonald PECs and other SQVs) (**Total Concentration**)			64.	-	4.98	111.	149.	128.	1,100.	1.06	5.	5.	459.
DEQ 2007 Bioaccumulative Sediment SLVs **(Total Concentration)**			-	-	1.	-	-	17.		0.07	2.	-	-
EPA Focused PRGs for LWG FS[2,3]			-	-	3.51	90.	562.	91.3	-	0.41	-	1.72	315.
10Xs EPA Focused In-Water PRGs for LWG FS ***OR*** JSCS If No PRG			640.	-	35.1	900.	5,620.	913.	11,000.	4.1	20.	17.2	3,150.
Oregon Background Concentrations (95th percentile)[4]			1.	1,000.	2.	168.9	100.7	22.	2,410.	5	365.8	2.	150.
January 2012 Surface Soil Sampling Event													
1	DLS-001-120120	20-Jan-12	1.48 U	**77.1**	1.48 U	**8.46**	**20.2**	**38.2**	**840.**	0.12 U	2.96 U	1.48 U	**744.**
2	DLS-002-120120	20-Jan-12	1.42 U	**133.**	1.42 U	**10.3**	**36.8**	**58.3**	**1,280.**	0.11 U	2.85 U	1.42 U	**4,120.**
3	DLS-003-120120	20-Jan-12	**7.87**	**114.**	**2.31**	**6.89**	**51.1**	**112.**	**696.**	0.1 U	2.39 U	1.19 U	**303.**
4	DLS-004-120120	20-Jan-12	1.24 U	**91.1**	**1.35**	**3.74**	**20.8**	**21.**	**1,090.**	0.1 U	2.47 U	1.24 U	**95.4**
5	DLS-005-120116	16-Jan-12	1.42 U	**56.9**	1.42 U	**4.21**	**13.8**	**6.57**	**619.**	0.11 U	2.84 U	1.42 U	**53.8**
6	DLS-006-120116	16-Jan-12	3.92 U	**179.**	3.92 U	**11.1**	**38.5**	**25.**	**3,400.**	0.31 U	7.84 U	3.92 U	**221.**
7	DLS-007-120120	20-Jan-12	**6.63**	**253.**	**6.48**	**29.2**	**121.**	**342.**	**1,380.**	**0.55**	2.89 U	1.44 U	**1,030.**
8	DLS-008-120120	20-Jan-12	**247.**	**1,760.**	**53.5**	**319.**	**1,400.**	**6,980.**	**1,100.**	**4.44**	3.24 U	**2.66**	**13,000.**
9	DLS-009-120120	20-Jan-12	**27.7**	**1,350.**	**33.3**	**127.**	**1,020.**	**3,020.**	**771.**	**1.79**	3.15 U	1.58 U	**5,580.**
10	DLS-010-120120	20-Jan-12	1.54 U	**186.**	1.54 U	**28.7**	**31.7**	**22.2**	**903.**	0.12 U	3.08 U	1.54 U	**195.**
11	DLS-011-120120	20-Jan-12	**21.1**	**812.**	**30.5**	**107.**	**480.**	**1,300.**	**664.**	**1.31**	2.83 U	1.42 U	**6,180.**
12	DLS-012-120120	20-Jan-12	**14.7**	**344.**	**8.39**	**40.4**	**246.**	**702.**	**555.**	0.31	3.22 U	1.61 U	**1,530.**
13	DLS-013-120120	20-Jan-12	1.45 U	**185.**	1.45 U	**28.4**	**28.1**	**17.5**	**807.**	0.12 U	2.89 U	1.45 U	**77.5**
14	DLS-014-120207	2-Feb-11	1.77 U	-	1.77 U	-	-	**11.**	-	0.14 U	-	-	**91.3**
15	DLS-015-120207	2-Feb-11	1.32 J	-	1.36 U	-	-	**102.**	-	0.17	-	-	**158.**
16	DLS-016-12-2-7	2-Feb-11	**27.2**	-	**10.4**	-	-	**2,310.**	-	**0.77**	-	-	**2,160.**
16-DUP	DLS-016-12-2-7-DUP	2-Feb-11	**14.4**	-	**9.78**	-	-	**756.**	-	**1.11**	-	-	**2,550.**
20	DLS-020-120220	20-Feb-12	1.46 J	-	6.08 U	-	-	**69.7**	-	0.09 J	-	-	**101.**

Notes: [1] Oregon DEQ Joint Source Control Strategy (JSCS), Table 3-1 07/16/07 Revision - MacDonald PEC and "other" Soil Quality Values (SQV's) established by Oregon DEQ

[2] Purpose of this Focused Source Control Evaluation is to evaluate potential pathways to the Willamette River, and therefore these screening levels are conservative values based on those being used in context of evaluating potential in-river risk. They are not based on acceptable risk levels for on-site exposure. Concentrations based on site-based acceptable risk levels would be higher.

[3] USEPA Focused Preliminary Remediation Goals, Letter from EPA to LWG, April 24, 2010

[4] Background concentrations were obtained from GeoEngineers Oregon Background Metals Evaluation Report, Table 5, June 30, 2010.

247 Exceeds 10Xs EPA In-Water PRG SLV

BOLD Constituent detected above Method Report Limit (MRL)

highlighted Method Detection Limit (calculated as 1/2 of MRL) exceeds 10X EPA Focused In-Water PRG or JCSC SLV, which ever is appropriate.

na = not analyzed

DEQ = Department of Environmental Quality

EPA = U.S. Environmental Protection Agency

LWG - Lower Willamette Group

FS = Feasibility Study

mg/kg = milligrams per kilogram

mg/L = milligrams per liter

U = not detected above laboratory reporting limit, indicated where available

TABLE 11
Summary of Soil Analytical Testing - PCBs and Phthalate Esters - Souce Control Investigation
SIC Doane Lake Property

Location ID	Sample ID	Sample Date	Laboratory Analytical Testing Results (mg/kg)										
			Polychlorinated Biphenyls (8082A)										Phthalate Esters (ug/kg)
			Aroclor										(8270D SIM)
			1016	1221	1232	1242	1248	1254	1260	1262	1268	Sum of Aroclors[3]	Bis(2-ethylhexyl) phthalate
Reference Levels:													
Oregon DEQ JSCS SLV[1,2]													
Toxicity (MacDonald PECs and other SQVs) -->			0.53	NV	NV	NV	1.5	0.3	0.2	NV	NV	0.676	800.
DEQ 2007 Bioaccumulative Sediment SLV -->			-	-	-	-	-	-	-	-	-	0.00039	330.
EPA Focused PRGs for LWG FS[2,3] -->			-	-	-	-	-	-	-	-	-	0.0295	-
10Xs EPA Focused In-Water PRGs for LWG FS ***OR*** JSCS if No PRG -->			5.3	NV	NV	NV	15.	3.	2.	NV	NV	0.295	3,300.
January 2012 Surface Soil Sampling													
1	DLS-001-120120	20-Jan-12	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	NT U	0.01 U	0.01 U	132. U
2	DLS-002-120120	20-Jan-12	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	**0.06**	**0.03**	NT U	0.01 U	**0.09**	680. U
3	DLS-003-120120	20-Jan-12	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	**0.6**	**0.32**	NT	**0.09**	**1.01**	962. U
4	DLS-004-120120	20-Jan-12	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	**0.11**	**0.05**	NT	**0.03**	**0.19**	118. U
5	DLS-005-120116	16-Jan-12	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	NT	0.01 U	0.01 U	106. U
6	DLS-006-120116	16-Jan-12	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	NT	0.04 U	0.04 U	371. U
7	DLS-007-120120	20-Jan-12	0.07 U	0.07 U	0.07 U	**0.08**	0.07 U	**1.23**	**0.5**	NT	**0.07**	**1.88**	2,370. U
8	DLS-008-120120	20-Jan-12	0.68 U	0.68 U	0.68 U	0.68 U	0.68 U	**18.9**	**9.55**	NT	**1.82**	**30.27**	**23,300.**
9	DLS-009-120120	20-Jan-12	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	**6.47**	**5.39**	NT	**5.31**	**17.17**	**77,500.**
10	DLS-010-120120	20-Jan-12	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	**0.05**	0.01 U	NT	0.01 U	**0.05**	133. U
11	DLS-011-120120	20-Jan-12	0.12 U	0.12 U	0.12 U	**0.55**	0.12 U	**4.37**	**1.58**	NT	**0.31**	**6.8**	**5,300.**
12	DLS-012-120120	20-Jan-12	0.14 U	0.14 U	0.14 U	**0.56**	0.14 U	**2.21**	**0.9**	NT	0.14 U	**3.67**	3,130. U
13	DLS-013-120120	20-Jan-12	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	**0.04**	**0.01**	NT	0.01 U	**0.05**	**137.**
14	DLS-014-120207	2-Feb-11	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	**0.01**	**0.01**	NT	na	**0.02**	**-**
15	DLS-015-120207	2-Feb-11	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	**0.03**	**0.02**	NT	na	**0.05**	**-**
16	DLS-016-12-2-7	2-Feb-11	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	**2.59**	**0.46**	NT	na	**3.05**	**285.**
16-DUP	DLS-016-12-2-7-DUP	2-Feb-11	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	**2.07**	**0.36**	NT	na	**2.43**	**260.**
20	DLS-020-120220	20-Feb-11	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	**0.01** J	0.01 U	NT	na	**0.01** J	**63.9**

Notes: [1] Oregon DEQ Joint Source Control Strategy (JSCS), Table 3-1 07/16/07 Revision - MacDonald PEC and "other" Soil Quality Values (SQV's) established by Oregon DEQ

[2] Purpose of this Focused Source Control Evaluation is to evaluate potential pathways to the Willamette River, and therefore these screening levels are conservative values based on those being used in context of evaluating potential in-river risk. They are not based on acceptable risk levels for on-site exposure. Concentrations based on site-based acceptable risk levels would be higher.

[3] USEPA Focused Preliminary Remediation Goals, Letter from EPA to LWG, April 24, 2010

247 Exceeds 10Xs EPA In-Water PRG SLV

BOLD Constituent detected above Method Report Limit (MRL)

highlighted Method Detection Limit (calculated as 1/2 of MRL) exceeds 10X EPA Focused In-Water PRG or JCSC SLV, which ever is appropriate.

na = not analyzed
DEQ = Department of Environmental Quality
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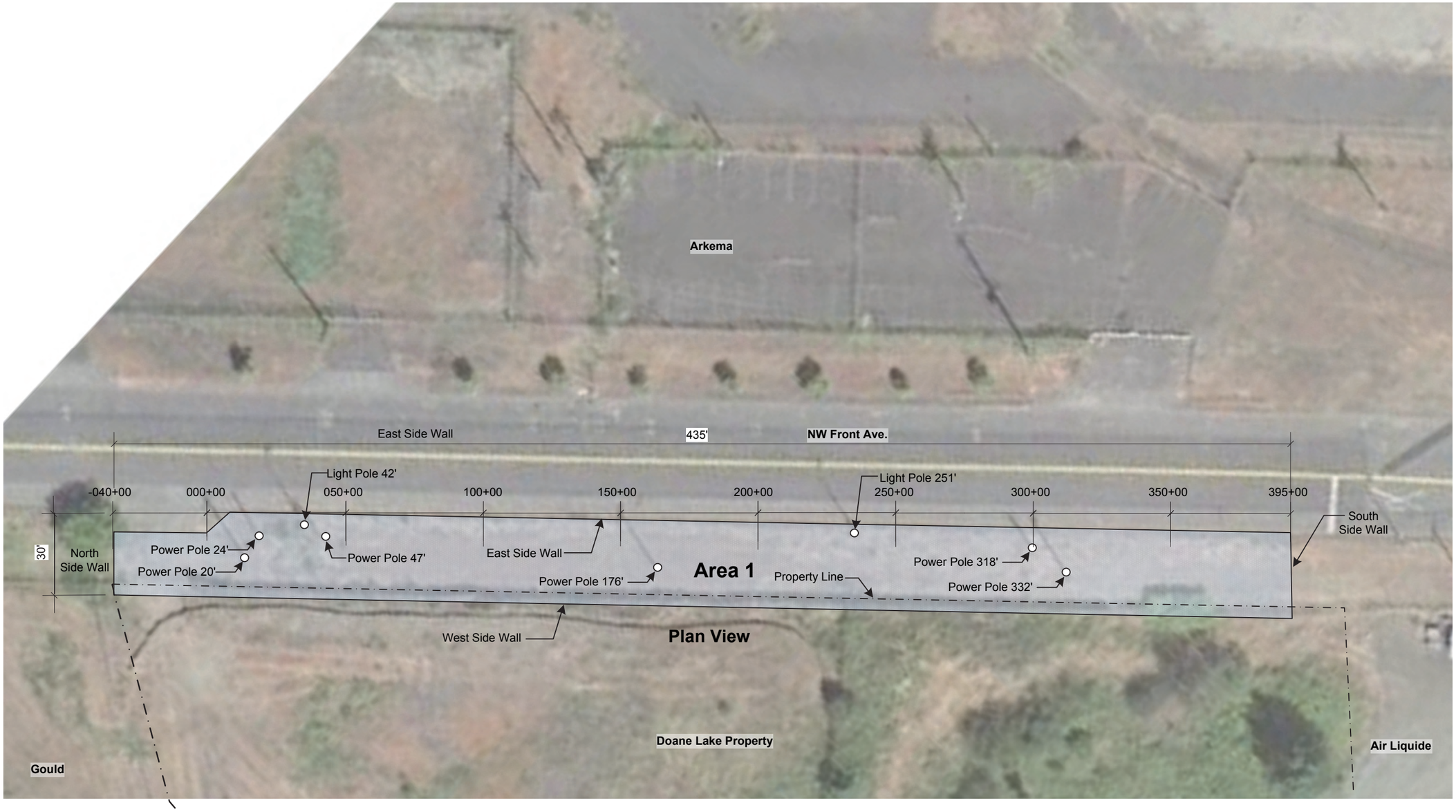
mg/kg = milligrams per kilogram
mg/L = milligrams per liter
U = not detected above laboratory reporting limit, indicated where available

Attachment 4

Select Figures and Tables from SCM Construction Completion Report



Project North

City of Portland Right-of-Way (ROW) Excavation Area

50 feet

Approximate Scale

Base photograph August 2010

Figure 3

ROW Excavation Area – Area 1

Doane Lake Source Control Action

MMGL Corp.

Bridgewater Group, Inc.

Table 1
City of Portland Right-of-Way Verification
Sample Analytical Laboratory Results
MMGL Corp. Doane Lake, Portland, Oregon

										May 2014						
	A4F0188-04	A4F0188-05	A4F0188-03	A4F0188-06	A4F0188-07	A4F0188-01	A4F0188-02	A4E0393-03	A4E0393-04	A4E0393-05	A4E0393-06	A4E0704-01	A4E0704-02	A4E0393-08	A4E0393-09
Chemical	**140609-NSW1'**	**140609-NSW4'**	**140609-minus 20FloorLIP[a]**	**140609-minus 20ESW1'LIP[a]**	**140609-minus 20ESW4'LIP[a]**	**140609-25ESW1'**	**140609-25ESW4'**	**140515-25 Floor**	**140515-125ESW1**	**140515-125ESW4**	**140515-125 Floor**	**140528-225ESW16in**	**140528-225ESW27in**	**140515-225ESW4**	**140515-225 Floor**
PCBs (µg/kg)															
Aroclor 1016	23.6 U	23.4 U	21.2 U	19.3 U	458.0 U	20.5 U	21.1 U	24.4 U	21.6 U	26.2 U	21.9 U	41.8 U	21.1 U	27.0 U	24.5 U
Aroclor 1221	23.6 U	23.4 U	21.2 U	19.3 U	458.0 U	20.5 U	21.1 U	24.4 U	21.6 U	26.2 U	21.9 U	41.8 U	21.1 U	27.0 U	24.5 U
Aroclor 1232	23.6 U	23.4 U	21.2 U	19.3 U	458.0 U	20.5 U	21.1 U	24.4 U	21.6 U	26.2 U	21.9 U	41.8 U	21.1 U	27.0 U	24.5 U
Aroclor 1242	23.6 U	23.4 U	21.2 U	19.3 U	458.0 U	20.5 U	21.1 U	24.4 U	21.6 U	26.2 U	21.9 U	**77.5**	21.1 U	27.0 U	24.5 U
Aroclor 1248	23.6 U	23.4 U	21.2 U	19.3 U	458.0 U	20.5 U	21.1 U	24.4 U	21.6 U	26.2 U	21.9 U	41.8 U	21.1 U	27.0 U	24.5 U
Aroclor 1254	23.6 U	**61.3**	21.2 U	**1020**	**9940**	**650**	**398**	24.4 U	21.6 U	26.2 U	21.9 U	**1400**	21.1 U	27.0 U	24.5 U
Aroclor 1260	23.6 U	**47.8**	21.2 U	**608**	**1610**	**381**	**258**	24.4 U	21.6 U	26.2 U	21.9 U	**1880**	21.1 U	27.0 U	24.5 U
Total PCB Aroclors[4]	83 U	**168**	74 U	**1676**	**12695**	**1082**	**709**	85 U	76 U	92 U	77 U	**3441**	73.9 U	95 U	86 U
Phthalates (µg/kg)															
Bis(2-ethylhexyl) phthalate	**48.9**	**255** Q-41	47.2 U	**39000**	1190 U, R-04 Q-41	**751**	**271**	80.3 U	38.4 U	43.7 U	39.6 U	**1150**	44.3 U	46.4 U	43.4 U
Total Metals (mg/kg)															
Arsenic			**8.29**	**7.26**	**18.9**										
Barium			**89.9**	**292**	**839**										
Cadmium	**0.468**	**5.11**	**5.11**	**8.42**	**36.90**	**6.39**	**1.69**	**0.28**	**0.272**	**0.88**	**3.35**	**5.74**	**6.4**	0.302 U	0.275 U
Chromium			**234**	**72.8**	**107**										
Lead	**444**	**770**	**60.6**	**379**	**1630**	**385**	**77.7**	**118**	**19.5**	**22.7**	**5.27**	**633**	**724** Q-41	**8.88**	**6.33**
Mercury	0.214 U	0.248 U	0.221 U	**0.369**	**6.10**	**0.351**	0.20 U	0.197 U	0.207 U	0.210 U	0.219 U	**0.446**	**0.501**	0.242 U	0.220 U
Selenium			1.38 U, Q-29	1.3 U, Q-29	**1.73** Q-29										
Silver			**0.374**	**0.463**	**1.38**										
TCLP Metals (mg/L)															
Arsenic			0.2 U												
Barium			**1.03**												
Cadmium			0.10 U		**0.346**										
Chromium			0.2 U												
Lead	**0.293**	**0.116**	0.1 U	**1.03**	**9.62**	**0.186**						**0.416**	0.05 U		
Mercury			0.008 U		0.004 U										
Selenium			0.200 U												
Silver			0.100 U												

Bold - detected value

Bank field indicates the sample was not analyzed for that constituent

U - Not detected at noted reporting limit

J - Estimated value

LIP - Left In Place

R-04 Reporting levels elevated due to dilution necessary for analysis.

Q-41 Estimated Results. Recovery of Continuing Calibration Verification sample above upper control limit for this analyte. Results are likely biased high.

a Expanded metals list to evaluate black sands present at sample location

Table 1
City of Portland Right-of-Way Verification
Sample Analytical Laboratory Results
MMGL Corp. Doane Lake, Portland, Oregon

Chemical	A4E0765-01 140530-325ESW1'	A4E0704-05 140528-325ESW4'	A4E0393-12 140515-325 Floor	A4E0674-03 140527-360'SSW1	A4E0393-14 140515-SSW4	A4E0674-04 140527-32'Pole LIP	A4E0758-04 140530-176'Pole2LIP	A4E0758-03 140530-251' Light Pole LIP	A4E0758-01 140530-318' Pole LIP	A4E0758-02 140530-332'Pole LIP
PCBs (µg/kg)										
Aroclor 1016	21.7 U	22.3 U	21.5 U	23.0 U	24.1 U	43.0 U	21.6 U	45.8 U	20.4 U	22.2 U
Aroclor 1221	21.7 U	22.3 U	21.5 U	23.0 U	24.1 U	43.0 U	21.6 U	45.8 U	20.4 U	22.2 U
Aroclor 1232	21.7 U	22.3 U	21.5 U	23.0 U	24.1 U	43.0 U	21.6 U	45.8 U	20.4 U	22.2 U
Aroclor 1242	21.7 U	22.3 U	21.5 U	23.0 U	24.1 U	**155**	21.6	**134**	20.4 U	22.2 U
Aroclor 1248	21.7 U	22.3 U	21.5 U	23.0 U	24.1 U	43.0 U	21.6 U	45.8 U	20.4 U	22.2 U
Aroclor 1254	**110**	22.3 U	21.5 U	23.0 U	24.1 U	**580**	**60.7**	**2130**	20.4 U	22.2 U
Aroclor 1260	**105**	22.3 U	21.5 U	23.0 U	24.1 U	**348**	**49.5**	**1570**	20.4 U	22.2 U
Total PCB Aroclors[4]	**269**	78 U	75 U	81 U	84 U	**1169**	**175**	**3926**	71 U	78 U
Phthalates (µg/kg)										
Bis(2-ethylhexyl) phthalate	**578**	53.7 U	39.2 U	40.8 U	79.5 U	**293 R-04**	**563** U, R-04	**6430**	61.8 U	222 U, R-04
Total Metals (mg/kg)										
Arsenic										
Barium										
Cadmium	**1.31**	**0.306**	0.268 U	**0.351**	0.273 U	**3.81**	**1.15**	**23.0**	**0.514**	**0.333**
Chromium										
Lead	**76.6**	**22.5**	**13.1**	**17.4**	**76.7**	**192** Q-41	**100**	**1220**	**177**	**67.6**
Mercury	0.0992 U	0.106 U	0.215 U	0.104 U	0.218 U	**0.160**	0.102 U	**0.661**	**0.134**	0.0986 U
Selenium										
Silver										
TCLP Metals (mg/L)										
Arsenic										
Barium										
Cadmium										
Chromium										
Lead						**0.0865**		**3.74**		
Mercury										
Selenium										
Silver										

Bold - detected value

Bank field indicates the sample was not analyzed for that constituent

U - Not detected at noted reporting limit

J - Estimated value

LIP - Left In Place

R-04 Reporting levels elevated due to dilution necessary for analysis.

Q-41 Estimated Results. Recovery of Continuing Calibration Verification sample above upper control limit for this analyte. Results are likely biased high.

a Expanded metals list to evaluate black sands present at sample location

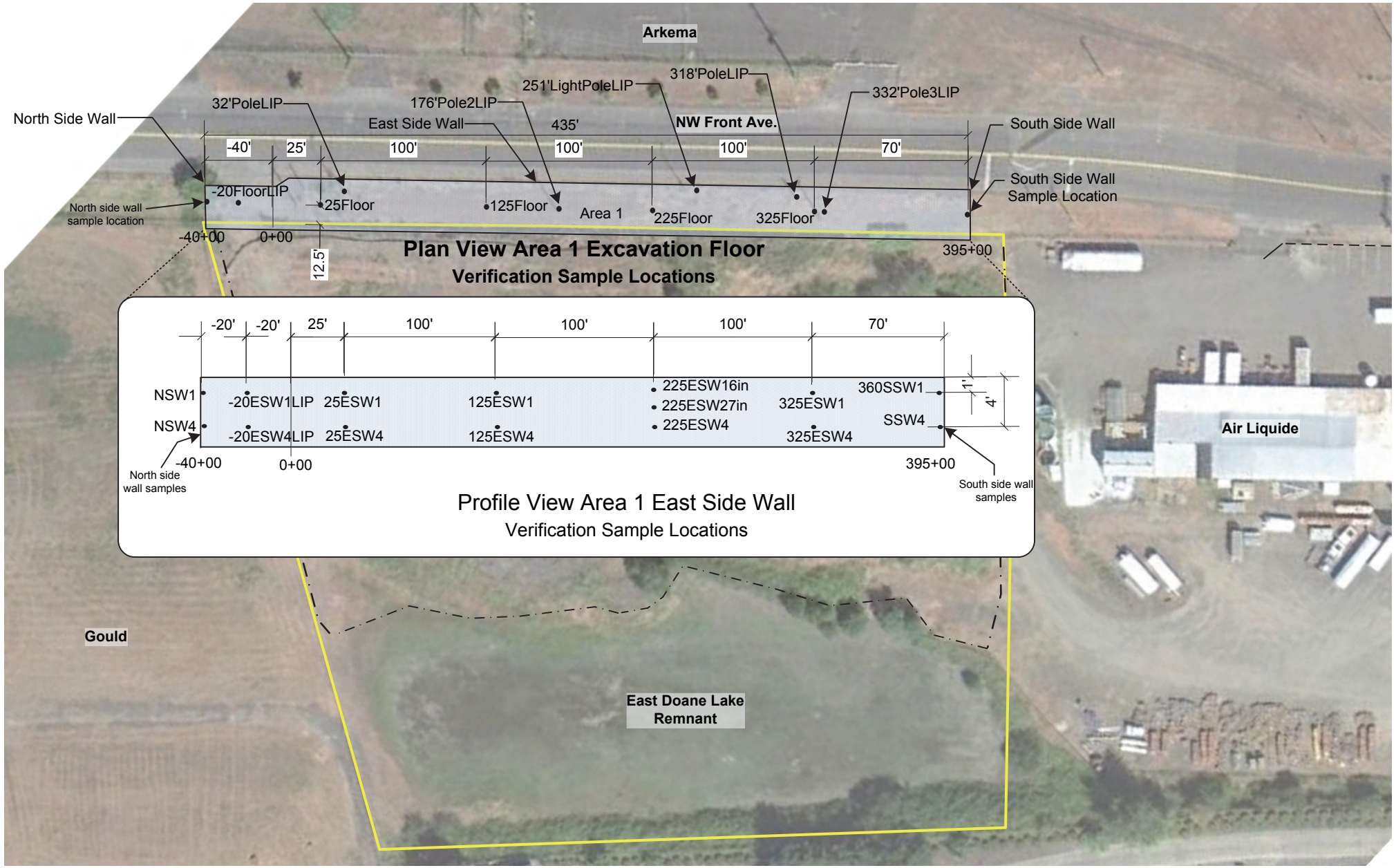


Figure 5
Verification Sample Locations – Area 1
Doane Lake Source Control Action
MMGL Corp.

Bridgewater Group, Inc.

BRIDGEWATER GROUP, INC.

AARON LERITZ
4500 SW KRUSE WAY; STE 110
LAKE OSWEGO, OR 97035
TEL: (503) 675-5252
FAX: (503) 675-1960
aleritz@bridgeh2o.com

May 12, 2014

Mr. David Lacey
Oregon Department of Environmental Quality – Northwest Region
2020 SW Fourth Ave, Suite 400
Portland, OR 97201

Subject: Doane Lake Cap Source Soil Sampling, Analysis and Results (DEQ ECSI #395)

Dear Mr. Lacey,

On behalf of MMGL Corp. (MMGL), Bridgewater Group, Inc. (Bridgewater) collected a composite sample of soil identified as potential cap material for the Doane Lake site. The soil was excavated from 800 NE Holiday Street in Portland, Oregon. It is currently stockpiled at 10550 SE Reedway Street at R.A. Roth Company's (R.A. Roth) equipment yard.

Bridgewater mobilized to the R.A. Roth property on April 17, 2014, to inspect the soil and collect a sample. The soil is poorly graded, sandy loam. Bridgewater inspected all sides and the top of the stockpile. The soil was very uniform with no evidence of staining, odors, or foreign debris. Photos of the stockpile are attached.

Bridgewater collected a composite sample consisting of five discrete samples in the stockpile for the analysis of total petroleum hydrocarbons (TPH) (NWTPH-HCID), metals (U.S. Environmental Protection Agency [USEPA] Method 6020 ICP/MS), and polychlorinated biphenyls (PCBs) (USEPA Method 8082A). One sample was collected for volatile organic compound (VOC) analysis (USEPA 8260B) from the first discrete location. A figure showing the randomly-selected, discrete sample locations is attached.

At each sample point, Bridgewater used a decontamined shovel to excavate a hole ranging from 1.5 feet to 3 feet below the surface of the pile. The exposed soil was then removed by hand with a clean nitrile glove. A new pair of gloves was used to obtain the sample material and place it directly into a clean, laboratory-supplied, 8-ounce, glass sample container. The sample was then transferred to a decontaminated stainless-steel (SS) bowl. A new container and new pair of nitrile gloves were used for the collection and processing of each discrete sample.

The samples were homogenized in the SS bowl with a decontaminated SS spoon. Equal amounts of soil were transferred into new laboratory-supplied, 8-ounce jars with the SS spoon. The samples were labeled and placed in a cooler with ice and transported to the analytical laboratory under chain-of-custody procedures.

As noted above, a sample for VOC analysis was collected from the first discrete sample location. The sample was placed directly into a clean, laboratory-supplied, 8-ounce glass container. The container was filled completely so that no air space was present.

The results of the analyses indicate that TPH, PCBs, and VOCs were not detected above the method reporting limits (MRLs), and the MRLs are less than the DEQ risk-based concentrations (RBCs) for direct contact with soil by residential, occupational or construction workers and the DEQ-USEPA Joint Source Control Strategy (JSCS) screening level values (SLVs) for upland soil adjacent to the Portland Harbor Superfund Site, where available. Detected metals concentrations are similar to or below typical State of Oregon naturally occurring, background concentrations, the DEQ RBCs, and the DEQ-USEPA JSCS SLVs for upland soil adjacent to the Portland Harbor Superfund Site. The laboratory analytical report is also attached.

Please contact me with any further questions or comments. I can be reached at 503.675.0297.

Sincerely,

BRIDGEWATER GROUP, INC.

Aaron Leritz
Vice President

Enclosures:
1. Stockpile Photographs
2. Figure - Soil Stockpile Sample Locations
3. Laboratory Analytical Report

cc: Jim Jakubiak/MMGL

Enclosure 1
Stockpile Photographs

Standing at Loading Area Looking Northeast. Lower and Upper Tiers Visible

Standing at Lower Tier Looking Northeast at Middle Tier and Upper Tier

Northern Slope. Looking South

Close-up of Soil

Close -Up of Soil

Example Sample Point (No. 1)

R.A. ROTH PROPERY

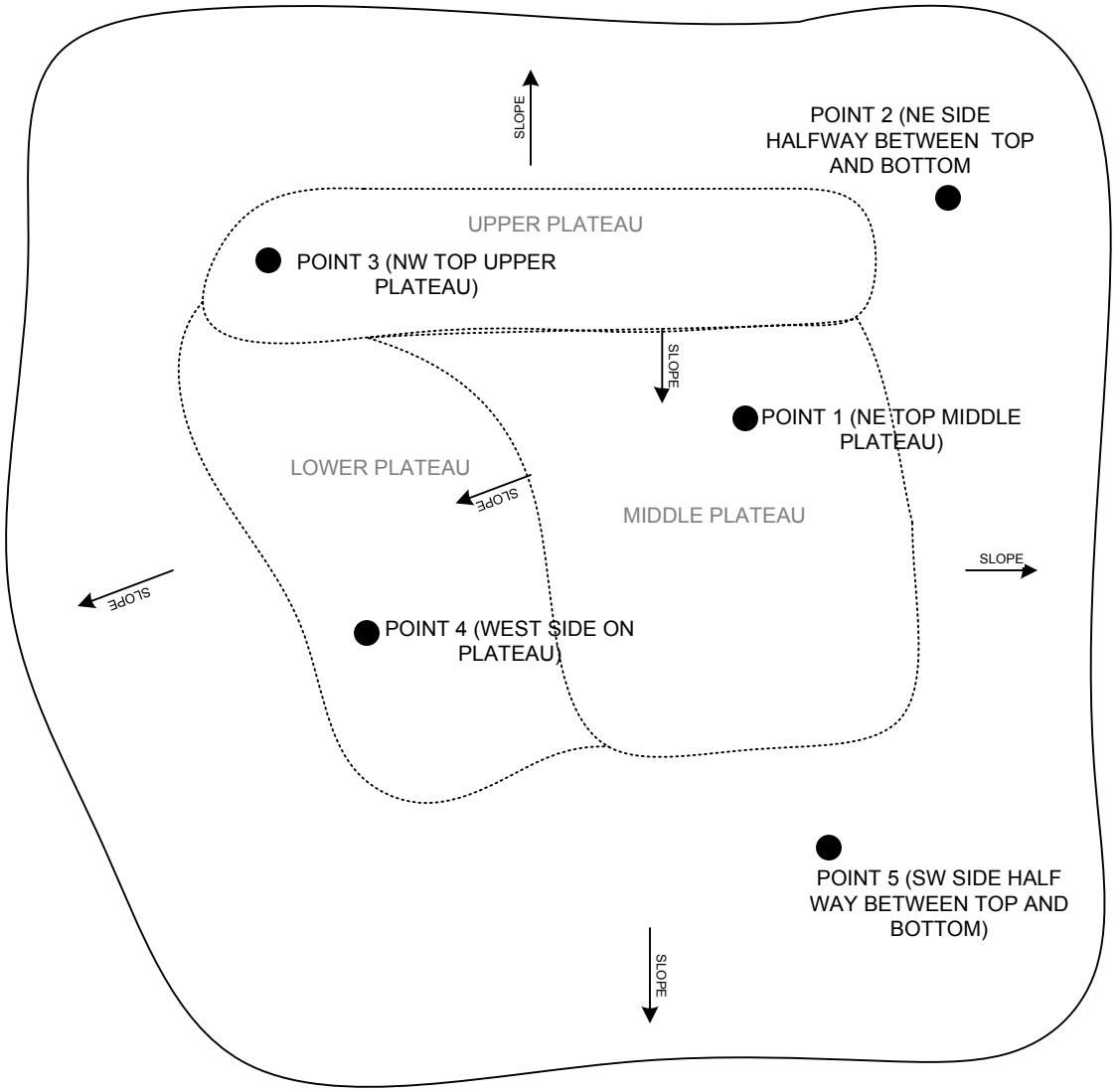
SOIL STOCKPILE PHOTOGRAPHS

BRIDGEWATER GROUP, INC.

\\psf\Home\Documents\03-Schnitzer\Doane Lake\Source Control Action Planning\Cap Soil Source Data\RAROTH STOCKPILE SAMPLE POINTS.vsdx

Enclosure 2
Stockpile Soil Sample Locations

NOT TO SCALE



TRUCK PARKING

SOIL LOADING

ENTRANCE

SE REEDWAY ST

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R.A. ROTH PROPERY

APPROXIMATE SOIL STOCKPILE COMPOSITE SAMPLE LOCATIONS

BRIDGEWATER GROUP, INC.

Enclosure 3
Laboratory Analytical Report

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Tuesday, April 29, 2014

Aaron Leritz
Bridgewater Group
4500 SW Kruse Way; Suite 110
Lake Oswego, OR 97035

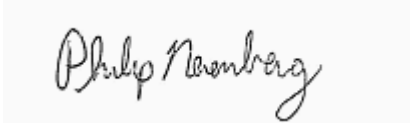
RE: Doane Lake Soil Cap Source / SIC-025

Enclosed are the results of analyses for work order A4D0430, which was received by the laboratory on 4/17/2014 at 1:55:00PM.

Thank you for using Apex Labs. We appreciate your business and strive to provide the highest quality services to the environmental industry.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: pnerenberg@apex-labs.com, or by phone at 503-718-2323.

Apex Laboratories



Philip Nerenberg, Lab Director

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Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

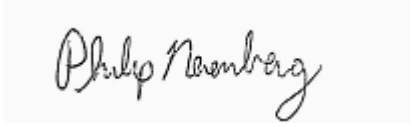
Bridgewater Group	Project: **Doane Lake Soil Cap Source**	
4500 SW Kruse Way; Suite 110	Project Number: SIC-025	**Reported:**
Lake Oswego, OR 97035	Project Manager: Aaron Leritz	04/29/14 13:38

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Reedway-20140417	A4D0430-01	Soil	04/17/14 10:00	04/17/14 13:55

Apex Laboratories



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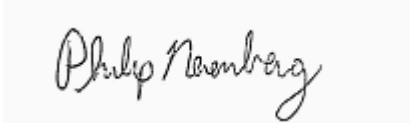
Bridgewater Group	Project: **Doane Lake Soil Cap Source**	
4500 SW Kruse Way; Suite 110	Project Number: SIC-025	**Reported:**
Lake Oswego, OR 97035	Project Manager: Aaron Leritz	04/29/14 13:38

ANALYTICAL SAMPLE RESULTS

Hydrocarbon Identification Screen by NWTPH-HCID

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
Reedway-20140417 (A4D0430-01)			**Matrix: Soil**		**Batch: 4040555**			
Gasoline Range Organics	ND	---	21.2	mg/kg dry	1	04/18/14 22:04	NWTPH-HCID	
Diesel Range Organics	ND	---	53.1	"	"	"	"	
Oil Range Organics	ND	---	106	"	"	"	"	
Surrogate: o-Terphenyl (Surr)			*Recovery: 107 %*	*Limits: 50-150 %*	"	"	"	
4-Bromofluorobenzene (Surr)			*103 %*	*Limits: 50-150 %*	"	"	"	

Apex Laboratories



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12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Bridgewater Group	Project: **Doane Lake Soil Cap Source**	
4500 SW Kruse Way; Suite 110	Project Number: SIC-025	**Reported:**
Lake Oswego, OR 97035	Project Manager: Aaron Leritz	04/29/14 13:38

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
Reedway-20140417 (A4D0430-01)			**Matrix: Soil**		**Batch: 4040532**			**V-15**
Acetone	ND	---	1050	ug/kg dry	50	04/18/14 12:15	5035/8260B	
Benzene	ND	---	13.1	"	"	"	"	
Bromobenzene	ND	---	26.2	"	"	"	"	
Bromochloromethane	ND	---	52.4	"	"	"	"	
Bromodichloromethane	ND	---	52.4	"	"	"	"	
Bromoform	ND	---	52.4	"	"	"	"	
Bromomethane	ND	---	524	"	"	"	"	
2-Butanone (MEK)	ND	---	524	"	"	"	"	
n-Butylbenzene	ND	---	52.4	"	"	"	"	
sec-Butylbenzene	ND	---	52.4	"	"	"	"	
tert-Butylbenzene	ND	---	52.4	"	"	"	"	
Carbon tetrachloride	ND	---	26.2	"	"	"	"	
Chlorobenzene	ND	---	26.2	"	"	"	"	
Chloroethane	ND	---	524	"	"	"	"	
Chloroform	ND	---	52.4	"	"	"	"	
Chloromethane	ND	---	262	"	"	"	"	
2-Chlorotoluene	ND	---	52.4	"	"	"	"	
4-Chlorotoluene	ND	---	52.4	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	---	262	"	"	"	"	
Dibromochloromethane	ND	---	105	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	---	26.2	"	"	"	"	
Dibromomethane	ND	---	52.4	"	"	"	"	
1,2-Dichlorobenzene	ND	---	26.2	"	"	"	"	
1,3-Dichlorobenzene	ND	---	26.2	"	"	"	"	
1,4-Dichlorobenzene	ND	---	26.2	"	"	"	"	
Dichlorodifluoromethane	ND	---	105	"	"	"	"	
1,1-Dichloroethane	ND	---	26.2	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	---	26.2	"	"	"	"	
1,1-Dichloroethene	ND	---	26.2	"	"	"	"	
cis-1,2-Dichloroethene	ND	---	26.2	"	"	"	"	
trans-1,2-Dichloroethene	ND	---	26.2	"	"	"	"	
1,2-Dichloropropane	ND	---	26.2	"	"	"	"	
1,3-Dichloropropane	ND	---	26.2	"	"	"	"	
2,2-Dichloropropane	ND	---	52.4	"	"	"	"	
1,1-Dichloropropene	ND	---	52.4	"	"	"	"	

Apex Laboratories

Philip Nerenberg, Lab Director

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12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Bridgewater Group	Project: **Doane Lake Soil Cap Source**	
4500 SW Kruse Way; Suite 110	Project Number: SIC-025	**Reported:**
Lake Oswego, OR 97035	Project Manager: Aaron Leritz	04/29/14 13:38

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
Reedway-20140417 (A4D0430-01)			**Matrix: Soil**		**Batch: 4040532**			**V-15**
cis-1,3-Dichloropropene	ND	---	52.4	ug/kg dry	50	"	5035/8260B	
trans-1,3-Dichloropropene	ND	---	52.4	"	"	"	"	
Ethylbenzene	ND	---	26.2	"	"	"	"	
Hexachlorobutadiene	ND	---	105	"	"	"	"	
2-Hexanone	ND	---	524	"	"	"	"	
Isopropylbenzene	ND	---	52.4	"	"	"	"	
4-Isopropyltoluene	ND	---	52.4	"	"	"	"	
4-Methyl-2-pentanone (MiBK)	ND	---	524	"	"	"	"	
Methyl tert-butyl ether (MTBE)	ND	---	52.4	"	"	"	"	
Methylene chloride	ND	---	262	"	"	"	"	
Naphthalene	ND	---	105	"	"	"	"	
n-Propylbenzene	ND	---	26.2	"	"	"	"	
Styrene	ND	---	52.4	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	---	26.2	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	---	26.2	"	"	"	"	
Tetrachloroethene (PCE)	ND	---	26.2	"	"	"	"	
Toluene	ND	---	52.4	"	"	"	"	
1,2,3-Trichlorobenzene	ND	---	262	"	"	"	"	
1,2,4-Trichlorobenzene	ND	---	262	"	"	"	"	
1,1,1-Trichloroethane	ND	---	26.2	"	"	"	"	
1,1,2-Trichloroethane	ND	---	26.2	"	"	"	"	
Trichloroethene (TCE)	ND	---	26.2	"	"	"	"	
Trichlorofluoromethane	ND	---	105	"	"	"	"	
1,2,3-Trichloropropane	ND	---	52.4	"	"	"	"	
1,2,4-Trimethylbenzene	ND	---	52.4	"	"	"	"	
1,3,5-Trimethylbenzene	ND	---	52.4	"	"	"	"	
Vinyl chloride	ND	---	26.2	"	"	"	"	
m,p-Xylene	ND	---	52.4	"	"	"	"	
o-Xylene	ND	---	26.2	"	"	"	"	
Surrogate: Dibromofluoromethane (Surr)			*Recovery: 119 %*	*Limits: 70-130 %*	1	"	"	
1,4-Difluorobenzene (Surr)			*108 %*	*Limits: 70-130 %*	"	"	"	
Toluene-d8 (Surr)			*105 %*	*Limits: 70-130 %*	"	"	"	
4-Bromofluorobenzene (Surr)			*95 %*	*Limits: 70-130 %*	"	"	"	

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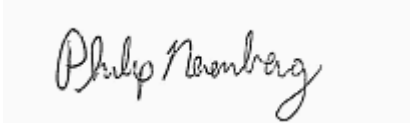

Philip Nerenberg, Lab Director

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Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

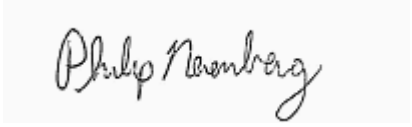
Bridgewater Group	Project: **Doane Lake Soil Cap Source**	
4500 SW Kruse Way; Suite 110	Project Number: SIC-025	**Reported:**
Lake Oswego, OR 97035	Project Manager: Aaron Leritz	04/29/14 13:38

ANALYTICAL SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
Reedway-20140417 (A4D0430-01)			**Matrix: Soil**		**Batch: 4040579**			**C-07**
Aroclor 1016	ND	---	10.3	ug/kg dry	1	04/21/14 14:25	EPA 8082A	
Aroclor 1221	ND	---	10.3	"	"	"	"	
Aroclor 1232	ND	---	10.3	"	"	"	"	
Aroclor 1242	ND	---	10.3	"	"	"	"	
Aroclor 1248	ND	---	10.3	"	"	"	"	
Aroclor 1254	ND	---	10.3	"	"	"	"	
Aroclor 1260	ND	---	10.3	"	"	"	"	
Surrogate: Decachlorobiphenyl (Surr)			*Recovery: 83 %*	*Limits: 60-125 %*	"	"	"	

Apex Laboratories



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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

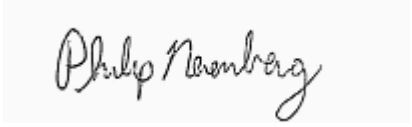
Bridgewater Group	Project: **Doane Lake Soil Cap Source**	
4500 SW Kruse Way; Suite 110	Project Number: SIC-025	**Reported:**
Lake Oswego, OR 97035	Project Manager: Aaron Leritz	04/29/14 13:38

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
Reedway-20140417 (A4D0430-01)			**Matrix: Soil**					
Batch: 4040571								
Aluminum	**8170**	---	62.4	mg/kg dry	10	04/23/14 11:10	EPA 6020A	
Antimony	ND	---	1.25	"	"	04/22/14 09:34	"	
Arsenic	**3.50**	---	1.25	"	"	"	"	
Barium	**107**	---	1.25	"	"	"	"	
Beryllium	**0.424**	---	0.250	"	"	"	"	
Cadmium	**0.287**	---	0.250	"	"	"	"	
Chromium	**10.2**	---	1.25	"	"	"	"	
Cobalt	**11.1**	---	0.250	"	"	"	"	
Copper	**16.2**	---	1.25	"	"	"	"	
Iron	**22800**	---	62.4	"	"	"	"	
Lead	**6.09**	---	0.250	"	"	"	"	
Manganese	**484**	---	1.25	"	"	"	"	
Mercury	ND	---	0.0999	"	"	"	"	
Molybdenum	ND	---	1.25	"	"	"	"	
Nickel	**15.6**	---	1.25	"	"	"	"	
Selenium	ND	---	1.25	"	"	"	"	
Silver	ND	---	0.250	"	"	"	"	
Thallium	ND	---	0.250	"	"	"	"	
Vanadium	**50.6**	---	1.25	"	"	"	"	
Zinc	**47.0**	---	4.99	"	"	"	"	
Batch: 4040664								
Tungsten	ND	---	2.20	"	"	04/23/14 11:33	"	E-03
Uranium	ND	---	2.20	"	"	"	"	E-03

Apex Laboratories



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503-718-2323 Phone
503-718-0333 Fax

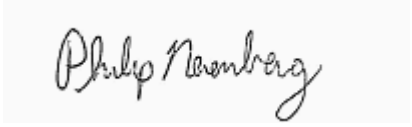
Bridgewater Group	Project: **Doane Lake Soil Cap Source**	
4500 SW Kruse Way; Suite 110	Project Number: SIC-025	**Reported:**
Lake Oswego, OR 97035	Project Manager: Aaron Leritz	04/29/14 13:38

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6010C (ICP-AES)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
Reedway-20140417 (A4D0430-01)			**Matrix: Soil**					
Batch: 4040584								
Boron	ND	---	24.8	mg/kg dry	4	04/25/14 12:16	EPA 6010C	
Lithium	**6.75**	---	4.96	"	"	"	"	
Titanium	**1340**	---	4.96	"	"	"	"	
Tin	ND	---	4.96	"	"	"	"	

Apex Laboratories



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503-718-2323 Phone
503-718-0333 Fax

Bridgewater Group	Project: **Doane Lake Soil Cap Source**	
4500 SW Kruse Way; Suite 110	Project Number: SIC-025	**Reported:**
Lake Oswego, OR 97035	Project Manager: Aaron Leritz	04/29/14 13:38

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
Reedway-20140417 (A4D0430-01)			**Matrix: Soil**		**Batch: 4040502**			
% Solids	**86.7**	---	1.00	% by Weight	1	04/18/14 10:21	EPA 8000C	

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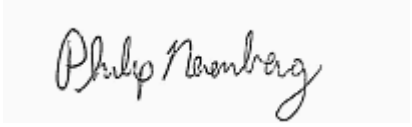

Philip Nerenberg, Lab Director

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Bridgewater Group	Project: **Doane Lake Soil Cap Source**	
4500 SW Kruse Way; Suite 110	Project Number: SIC-025	**Reported:**
Lake Oswego, OR 97035	Project Manager: Aaron Leritz	04/29/14 13:38

QUALITY CONTROL (QC) SAMPLE RESULTS

Hydrocarbon Identification Screen by NWTPH-HCID

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4040555 - NWTPH-HCID (Soil)							**Soil**					
Blank (4040555-BLK1)					Prepared: 04/18/14 14:52 Analyzed: 04/18/14 20:53							
NWTPH-HCID												
Gasoline Range Organics	ND	---	16.7	mg/kg wet	1	---	---	---	---	---	---	
Diesel Range Organics	ND	---	41.7	"	"	---	---	---	---	---	---	
Oil Range Organics	ND	---	83.3	"	"	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 102 %*	*Limits: 50-150 %*			*Dilution: 1x*					
4-Bromofluorobenzene (Surr)			*99 %*	*50-150 %*			*"*					

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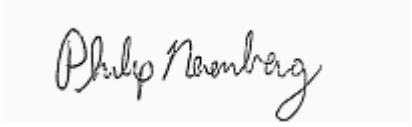

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Bridgewater Group	Project: **Doane Lake Soil Cap Source**	
4500 SW Kruse Way; Suite 110	Project Number: SIC-025	**Reported:**
Lake Oswego, OR 97035	Project Manager: Aaron Leritz	04/29/14 13:38

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4040532 - EPA 5035A							**Soil**					
Blank (4040532-BLK1)					Prepared: 04/18/14 09:00 Analyzed: 04/18/14 11:03							
5035/8260B												
Acetone	ND	---	667	ug/kg wet	50	---	---	---	---	---	---	
Benzene	ND	---	8.33	"	"	---	---	---	---	---	---	
Bromobenzene	ND	---	16.7	"	"	---	---	---	---	---	---	
Bromochloromethane	ND	---	33.3	"	"	---	---	---	---	---	---	
Bromodichloromethane	ND	---	33.3	"	"	---	---	---	---	---	---	
Bromoform	ND	---	33.3	"	"	---	---	---	---	---	---	
Bromomethane	ND	---	333	"	"	---	---	---	---	---	---	
2-Butanone (MEK)	ND	---	333	"	"	---	---	---	---	---	---	
n-Butylbenzene	ND	---	33.3	"	"	---	---	---	---	---	---	
sec-Butylbenzene	ND	---	33.3	"	"	---	---	---	---	---	---	
tert-Butylbenzene	ND	---	33.3	"	"	---	---	---	---	---	---	
Carbon tetrachloride	ND	---	16.7	"	"	---	---	---	---	---	---	
Chlorobenzene	ND	---	16.7	"	"	---	---	---	---	---	---	
Chloroethane	ND	---	333	"	"	---	---	---	---	---	---	
Chloroform	ND	---	33.3	"	"	---	---	---	---	---	---	
Chloromethane	ND	---	167	"	"	---	---	---	---	---	---	
2-Chlorotoluene	ND	---	33.3	"	"	---	---	---	---	---	---	
4-Chlorotoluene	ND	---	33.3	"	"	---	---	---	---	---	---	
1,2-Dibromo-3-chloropropane	ND	---	167	"	"	---	---	---	---	---	---	
Dibromochloromethane	ND	---	66.7	"	"	---	---	---	---	---	---	
1,2-Dibromoethane (EDB)	ND	---	16.7	"	"	---	---	---	---	---	---	
Dibromomethane	ND	---	33.3	"	"	---	---	---	---	---	---	
1,2-Dichlorobenzene	ND	---	16.7	"	"	---	---	---	---	---	---	
1,3-Dichlorobenzene	ND	---	16.7	"	"	---	---	---	---	---	---	
1,4-Dichlorobenzene	ND	---	16.7	"	"	---	---	---	---	---	---	
Dichlorodifluoromethane	ND	---	66.7	"	"	---	---	---	---	---	---	
1,1-Dichloroethane	ND	---	16.7	"	"	---	---	---	---	---	---	
1,2-Dichloroethane (EDC)	ND	---	16.7	"	"	---	---	---	---	---	---	
1,1-Dichloroethene	ND	---	16.7	"	"	---	---	---	---	---	---	

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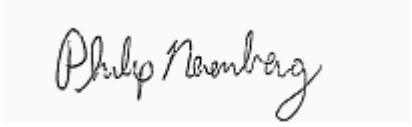

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Bridgewater Group	Project: **Doane Lake Soil Cap Source**	
4500 SW Kruse Way; Suite 110	Project Number: SIC-025	**Reported:**
Lake Oswego, OR 97035	Project Manager: Aaron Leritz	04/29/14 13:38

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4040532 - EPA 5035A							**Soil**					
Blank (4040532-BLK1)					Prepared: 04/18/14 09:00 Analyzed: 04/18/14 11:03							
cis-1,2-Dichloroethene	ND	---	16.7	ug/kg wet	"	---	---	---	---	---	---	
trans-1,2-Dichloroethene	ND	---	16.7	"	"	---	---	---	---	---	---	
1,2-Dichloropropane	ND	---	16.7	"	"	---	---	---	---	---	---	
1,3-Dichloropropane	ND	---	16.7	"	"	---	---	---	---	---	---	
2,2-Dichloropropane	ND	---	33.3	"	"	---	---	---	---	---	---	
1,1-Dichloropropene	ND	---	33.3	"	"	---	---	---	---	---	---	
cis-1,3-Dichloropropene	ND	---	33.3	"	"	---	---	---	---	---	---	
trans-1,3-Dichloropropene	ND	---	33.3	"	"	---	---	---	---	---	---	
Ethylbenzene	ND	---	16.7	"	"	---	---	---	---	---	---	
Hexachlorobutadiene	ND	---	66.7	"	"	---	---	---	---	---	---	
2-Hexanone	ND	---	333	"	"	---	---	---	---	---	---	
Isopropylbenzene	ND	---	33.3	"	"	---	---	---	---	---	---	
4-Isopropyltoluene	ND	---	33.3	"	"	---	---	---	---	---	---	
4-Methyl-2-pentanone (MiBK)	ND	---	333	"	"	---	---	---	---	---	---	
Methyl tert-butyl ether (MTBE)	ND	---	33.3	"	"	---	---	---	---	---	---	
Methylene chloride	ND	---	167	"	"	---	---	---	---	---	---	
Naphthalene	ND	---	66.7	"	"	---	---	---	---	---	---	
n-Propylbenzene	ND	---	16.7	"	"	---	---	---	---	---	---	
Styrene	ND	---	33.3	"	"	---	---	---	---	---	---	
1,1,1,2-Tetrachloroethane	ND	---	16.7	"	"	---	---	---	---	---	---	
1,1,2,2-Tetrachloroethane	ND	---	16.7	"	"	---	---	---	---	---	---	
Tetrachloroethene (PCE)	ND	---	16.7	"	"	---	---	---	---	---	---	
Toluene	ND	---	33.3	"	"	---	---	---	---	---	---	
1,2,3-Trichlorobenzene	ND	---	167	"	"	---	---	---	---	---	---	
1,2,4-Trichlorobenzene	ND	---	167	"	"	---	---	---	---	---	---	
1,1,1-Trichloroethane	ND	---	16.7	"	"	---	---	---	---	---	---	
1,1,2-Trichloroethane	ND	---	16.7	"	"	---	---	---	---	---	---	
Trichloroethene (TCE)	ND	---	16.7	"	"	---	---	---	---	---	---	
Trichlorofluoromethane	ND	---	66.7	"	"	---	---	---	---	---	---	
1,2,3-Trichloropropane	ND	---	33.3	"	"	---	---	---	---	---	---	

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Bridgewater Group	Project: **Doane Lake Soil Cap Source**	
4500 SW Kruse Way; Suite 110	Project Number: SIC-025	**Reported:**
Lake Oswego, OR 97035	Project Manager: Aaron Leritz	04/29/14 13:38

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4040532 - EPA 5035A							**Soil**					
Blank (4040532-BLK1)					Prepared: 04/18/14 09:00 Analyzed: 04/18/14 11:03							
1,2,4-Trimethylbenzene	ND	---	33.3	"	"	---	---	---	---	---	---	
1,3,5-Trimethylbenzene	ND	---	33.3	"	"	---	---	---	---	---	---	
Vinyl chloride	ND	---	16.7	"	"	---	---	---	---	---	---	
m,p-Xylene	ND	---	33.3	"	"	---	---	---	---	---	---	
o-Xylene	ND	---	16.7	"	"	---	---	---	---	---	---	
Surr: Dibromofluoromethane (Surr)			*Recovery: 114 %*		*Limits: 70-130 %*				*Dilution: 1x*			
1,4-Difluorobenzene (Surr)			*107 %*		*70-130 %*				*"*			
Toluene-d8 (Surr)			*105 %*		*70-130 %*				*"*			
4-Bromofluorobenzene (Surr)			*96 %*		*70-130 %*				*"*			
LCS (4040532-BS1)					Prepared: 04/18/14 09:00 Analyzed: 04/18/14 10:14							
5035/8260B												
Acetone	2190	---	1000	ug/kg wet	50	2000	---	110	65-135%	---	---	
Benzene	1020	---	12.5	"	"	1000	---	102	"	---	---	
Bromobenzene	970	---	25.0	"	"	"	---	97	"	---	---	
Bromochloromethane	1250	---	50.0	"	"	"	---	125	"	---	---	
Bromodichloromethane	1180	---	50.0	"	"	"	---	118	"	---	---	
Bromoform	1120	---	50.0	"	"	"	---	112	"	---	---	
Bromomethane	1420	---	500	"	"	"	---	142	"	---	---	EST
2-Butanone (MEK)	2350	---	500	"	"	2000	---	118	"	---	---	
n-Butylbenzene	1130	---	50.0	"	"	1000	---	113	"	---	---	
sec-Butylbenzene	1140	---	50.0	"	"	"	---	114	"	---	---	
tert-Butylbenzene	1140	---	50.0	"	"	"	---	114	"	---	---	
Carbon tetrachloride	1260	---	25.0	"	"	"	---	126	"	---	---	
Chlorobenzene	1010	---	25.0	"	"	"	---	101	"	---	---	
Chloroethane	1710	---	500	"	"	"	---	171	"	---	---	EST
Chloroform	1010	---	50.0	"	"	"	---	101	"	---	---	
Chloromethane	994	---	250	"	"	"	---	99	"	---	---	
2-Chlorotoluene	1040	---	50.0	"	"	"	---	104	"	---	---	
4-Chlorotoluene	1110	---	50.0	"	"	"	---	111	"	---	---	
1,2-Dibromo-3-chloropropane	862	---	250	"	"	"	---	86	"	---	---	

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4500 SW Kruse Way; Suite 110	Project Number: SIC-025	**Reported:**
Lake Oswego, OR 97035	Project Manager: Aaron Leritz	04/29/14 13:38

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4040532 - EPA 5035A							**Soil**					
LCS (4040532-BS1)					Prepared: 04/18/14 09:00 Analyzed: 04/18/14 10:14							
Dibromochloromethane	1050	---	100	ug/kg wet	"	"	---	105	"	---	---	
1,2-Dibromoethane (EDB)	1050	---	25.0	"	"	"	---	105	"	---	---	
Dibromomethane	1120	---	50.0	"	"	"	---	112	"	---	---	
1,2-Dichlorobenzene	982	---	25.0	"	"	"	---	98	"	---	---	
1,3-Dichlorobenzene	1020	---	25.0	"	"	"	---	102	"	---	---	
1,4-Dichlorobenzene	995	---	25.0	"	"	"	---	100	"	---	---	
Dichlorodifluoromethane	731	---	100	"	"	"	---	73	"	---	---	
1,1-Dichloroethane	1150	---	25.0	"	"	"	---	115	"	---	---	
1,2-Dichloroethane (EDC)	1180	---	25.0	"	"	"	---	118	"	---	---	
1,1-Dichloroethene	1210	---	25.0	"	"	"	---	121	"	---	---	
cis-1,2-Dichloroethene	1140	---	25.0	"	"	"	---	114	"	---	---	
trans-1,2-Dichloroethene	1160	---	25.0	"	"	"	---	116	"	---	---	
1,2-Dichloropropane	1170	---	25.0	"	"	"	---	117	"	---	---	
1,3-Dichloropropane	1040	---	25.0	"	"	"	---	104	"	---	---	
2,2-Dichloropropane	1190	---	50.0	"	"	"	---	119	"	---	---	
1,1-Dichloropropene	1090	---	50.0	"	"	"	---	109	"	---	---	
cis-1,3-Dichloropropene	952	---	50.0	"	"	"	---	95	"	---	---	
trans-1,3-Dichloropropene	1060	---	50.0	"	"	"	---	106	"	---	---	
Ethylbenzene	1040	---	25.0	"	"	"	---	104	"	---	---	
Hexachlorobutadiene	908	---	100	"	"	"	---	91	"	---	---	
2-Hexanone	1930	---	500	"	"	2000	---	97	"	---	---	
Isopropylbenzene	1110	---	50.0	"	"	1000	---	111	"	---	---	
4-Isopropyltoluene	1100	---	50.0	"	"	"	---	110	"	---	---	
4-Methyl-2-pentanone (MiBK)	2220	---	500	"	"	2000	---	111	"	---	---	
Methyl tert-butyl ether (MTBE)	1050	---	50.0	"	"	1000	---	105	"	---	---	
Methylene chloride	1060	---	250	"	"	"	---	106	"	---	---	
Naphthalene	758	---	100	"	"	"	---	76	"	---	---	
n-Propylbenzene	1100	---	25.0	"	"	"	---	110	"	---	---	
Styrene	983	---	50.0	"	"	"	---	98	"	---	---	
1,1,1,2-Tetrachloroethane	1110	---	25.0	"	"	"	---	111	"	---	---	

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Bridgewater Group	Project: **Doane Lake Soil Cap Source**	
4500 SW Kruse Way; Suite 110	Project Number: SIC-025	**Reported:**
Lake Oswego, OR 97035	Project Manager: Aaron Leritz	04/29/14 13:38

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4040532 - EPA 5035A							**Soil**					
LCS (4040532-BS1)					Prepared: 04/18/14 09:00 Analyzed: 04/18/14 10:14							
1,1,2,2-Tetrachloroethane	1030	---	25.0	"	"	"	---	103	"	---	---	
Tetrachloroethene (PCE)	940	---	25.0	"	"	"	---	94	"	---	---	
Toluene	976	---	50.0	"	"	"	---	98	"	---	---	
1,2,3-Trichlorobenzene	880	---	250	"	"	"	---	88	"	---	---	
1,2,4-Trichlorobenzene	906	---	250	"	"	"	---	91	"	---	---	
1,1,1-Trichloroethane	1160	---	25.0	"	"	"	---	116	"	---	---	
1,1,2-Trichloroethane	1040	---	25.0	"	"	"	---	104	"	---	---	
Trichloroethene (TCE)	1040	---	25.0	"	"	"	---	104	"	---	---	
Trichlorofluoromethane	1960	---	100	"	"	"	---	196	"	---	---	EST
1,2,3-Trichloropropane	984	---	50.0	"	"	"	---	98	"	---	---	
1,2,4-Trimethylbenzene	1100	---	50.0	"	"	"	---	110	"	---	---	
1,3,5-Trimethylbenzene	1130	---	50.0	"	"	"	---	113	"	---	---	
Vinyl chloride	1140	---	25.0	"	"	"	---	114	"	---	---	
m,p-Xylene	2200	---	50.0	"	"	2000	---	110	"	---	---	
o-Xylene	1080	---	25.0	"	"	1000	---	108	"	---	---	
Surr: Dibromofluoromethane (Surr)			*Recovery: 113 %*		*Limits: 70-130 %*			*Dilution: 1x*				
1,4-Difluorobenzene (Surr)			*105 %*		*70-130 %*			*"*				
Toluene-d8 (Surr)			*101 %*		*70-130 %*			*"*				
4-Bromofluorobenzene (Surr)			*92 %*		*70-130 %*			*"*				
Duplicate (4040532-DUP1)					Prepared: 04/17/14 16:04 Analyzed: 04/18/14 12:40							
QC Source Sample: Reedway-20140417 (A4D0430-01)												
5035/8260B												
Acetone	ND	---	1160	ug/kg dry	50	---	ND	---	---	---	30%	
Benzene	ND	---	14.5	"	"	---	ND	---	---	---	30%	
Bromobenzene	ND	---	29.1	"	"	---	ND	---	---	---	30%	
Bromochloromethane	ND	---	58.2	"	"	---	ND	---	---	---	30%	
Bromodichloromethane	ND	---	58.2	"	"	---	ND	---	---	---	30%	
Bromoform	ND	---	58.2	"	"	---	ND	---	---	---	30%	
Bromomethane	ND	---	582	"	"	---	ND	---	---	---	30%	
2-Butanone (MEK)	ND	---	582	"	"	---	ND	---	---	---	30%	
n-Butylbenzene	ND	---	58.2	"	"	---	ND	---	---	---	30%	

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Bridgewater Group	Project: **Doane Lake Soil Cap Source**	
4500 SW Kruse Way; Suite 110	Project Number: SIC-025	**Reported:**
Lake Oswego, OR 97035	Project Manager: Aaron Leritz	04/29/14 13:38

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4040532 - EPA 5035A							**Soil**					
Duplicate (4040532-DUP1)					Prepared: 04/17/14 16:04 Analyzed: 04/18/14 12:40							
QC Source Sample: Reedway-20140417 (A4D0430-01)												
sec-Butylbenzene	ND	---	58.2	ug/kg dry	"	---	ND	---	---	---	30%	
tert-Butylbenzene	ND	---	58.2	"	"	---	ND	---	---	---	30%	
Carbon tetrachloride	ND	---	29.1	"	"	---	ND	---	---	---	30%	
Chlorobenzene	ND	---	29.1	"	"	---	ND	---	---	---	30%	
Chloroethane	ND	---	582	"	"	---	ND	---	---	---	30%	
Chloroform	ND	---	58.2	"	"	---	ND	---	---	---	30%	
Chloromethane	ND	---	291	"	"	---	ND	---	---	---	30%	
2-Chlorotoluene	ND	---	58.2	"	"	---	ND	---	---	---	30%	
4-Chlorotoluene	ND	---	58.2	"	"	---	ND	---	---	---	30%	
1,2-Dibromo-3-chloropropane	ND	---	291	"	"	---	ND	---	---	---	30%	
Dibromochloromethane	ND	---	116	"	"	---	ND	---	---	---	30%	
1,2-Dibromoethane (EDB)	ND	---	29.1	"	"	---	ND	---	---	---	30%	
Dibromomethane	ND	---	58.2	"	"	---	ND	---	---	---	30%	
1,2-Dichlorobenzene	ND	---	29.1	"	"	---	ND	---	---	---	30%	
1,3-Dichlorobenzene	ND	---	29.1	"	"	---	ND	---	---	---	30%	
1,4-Dichlorobenzene	ND	---	29.1	"	"	---	ND	---	---	---	30%	
Dichlorodifluoromethane	ND	---	116	"	"	---	ND	---	---	---	30%	
1,1-Dichloroethane	ND	---	29.1	"	"	---	ND	---	---	---	30%	
1,2-Dichloroethane (EDC)	ND	---	29.1	"	"	---	ND	---	---	---	30%	
1,1-Dichloroethene	ND	---	29.1	"	"	---	ND	---	---	---	30%	
cis-1,2-Dichloroethene	ND	---	29.1	"	"	---	ND	---	---	---	30%	
trans-1,2-Dichloroethene	ND	---	29.1	"	"	---	ND	---	---	---	30%	
1,2-Dichloropropane	ND	---	29.1	"	"	---	ND	---	---	---	30%	
1,3-Dichloropropane	ND	---	29.1	"	"	---	ND	---	---	---	30%	
2,2-Dichloropropane	ND	---	58.2	"	"	---	ND	---	---	---	30%	
1,1-Dichloropropene	ND	---	58.2	"	"	---	ND	---	---	---	30%	
cis-1,3-Dichloropropene	ND	---	58.2	"	"	---	ND	---	---	---	30%	
trans-1,3-Dichloropropene	ND	---	58.2	"	"	---	ND	---	---	---	30%	
Ethylbenzene	ND	---	29.1	"	"	---	ND	---	---	---	30%	

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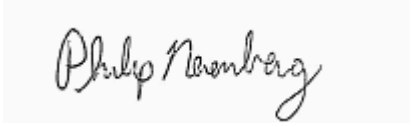

Philip Nerenberg, Lab Director

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Bridgewater Group	Project: **Doane Lake Soil Cap Source**	
4500 SW Kruse Way; Suite 110	Project Number: SIC-025	**Reported:**
Lake Oswego, OR 97035	Project Manager: Aaron Leritz	04/29/14 13:38

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4040532 - EPA 5035A							**Soil**					
Duplicate (4040532-DUP1)					Prepared: 04/17/14 16:04 Analyzed: 04/18/14 12:40							
QC Source Sample: Reedway-20140417 (A4D0430-01)												
Hexachlorobutadiene	ND	---	116	ug/kg dry	"	---	ND	---	---	---	30%	
2-Hexanone	ND	---	582	"	"	---	ND	---	---	---	30%	
Isopropylbenzene	ND	---	58.2	"	"	---	ND	---	---	---	30%	
4-Isopropyltoluene	ND	---	58.2	"	"	---	ND	---	---	---	30%	
4-Methyl-2-pentanone (MiBK)	ND	---	582	"	"	---	ND	---	---	---	30%	
Methyl tert-butyl ether (MTBE)	ND	---	58.2	"	"	---	ND	---	---	---	30%	
Methylene chloride	ND	---	291	"	"	---	ND	---	---	---	30%	
Naphthalene	ND	---	116	"	"	---	ND	---	---	---	30%	
n-Propylbenzene	ND	---	29.1	"	"	---	ND	---	---	---	30%	
Styrene	ND	---	58.2	"	"	---	ND	---	---	---	30%	
1,1,1,2-Tetrachloroethane	ND	---	29.1	"	"	---	ND	---	---	---	30%	
1,1,2,2-Tetrachloroethane	ND	---	29.1	"	"	---	ND	---	---	---	30%	
Tetrachloroethene (PCE)	ND	---	29.1	"	"	---	ND	---	---	---	30%	
Toluene	ND	---	58.2	"	"	---	ND	---	---	---	30%	
1,2,3-Trichlorobenzene	ND	---	291	"	"	---	ND	---	---	---	30%	
1,2,4-Trichlorobenzene	ND	---	291	"	"	---	ND	---	---	---	30%	
1,1,1-Trichloroethane	ND	---	29.1	"	"	---	ND	---	---	---	30%	
1,1,2-Trichloroethane	ND	---	29.1	"	"	---	ND	---	---	---	30%	
Trichloroethene (TCE)	ND	---	29.1	"	"	---	ND	---	---	---	30%	
Trichlorofluoromethane	ND	---	116	"	"	---	ND	---	---	---	30%	
1,2,3-Trichloropropane	ND	---	58.2	"	"	---	ND	---	---	---	30%	
1,2,4-Trimethylbenzene	ND	---	58.2	"	"	---	ND	---	---	---	30%	
1,3,5-Trimethylbenzene	ND	---	58.2	"	"	---	ND	---	---	---	30%	
Vinyl chloride	ND	---	29.1	"	"	---	ND	---	---	---	30%	
m,p-Xylene	ND	---	58.2	"	"	---	ND	---	---	---	30%	
o-Xylene	ND	---	29.1	"	"	---	ND	---	---	---	30%	

Surr: Dibromofluoromethane (Surr)	*Recovery: 120 %*	*Limits: 70-130 %*	*Dilution: 1x*	
1,4-Difluorobenzene (Surr)	*108 %*	*70-130 %*	*"*	
Toluene-d8 (Surr)	*106 %*	*70-130 %*	*"*	

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Bridgewater Group	Project: **Doane Lake Soil Cap Source**	
4500 SW Kruse Way; Suite 110	Project Number: SIC-025	**Reported:**
Lake Oswego, OR 97035	Project Manager: Aaron Leritz	04/29/14 13:38

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4040532 - EPA 5035A												**Soil**
Duplicate (4040532-DUP1)												
Prepared: 04/17/14 16:04 Analyzed: 04/18/14 12:40												
QC Source Sample: Reedway-20140417 (A4D0430-01)												
Surr: 4-Bromofluorobenzene (Surr)	*Recovery: 94 %*		*Limits: 70-130 %*		*Dilution: 1x*							

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Bridgewater Group	Project: **Doane Lake Soil Cap Source**	
4500 SW Kruse Way; Suite 110	Project Number: SIC-025	**Reported:**
Lake Oswego, OR 97035	Project Manager: Aaron Leritz	04/29/14 13:38

QUALITY CONTROL (QC) SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4040579 - EPA 3546							**Soil**					
Blank (4040579-BLK1)					Prepared: 04/21/14 09:59 Analyzed: 04/21/14 13:49							**C-07**
EPA 8082A												
Aroclor 1016	ND	---	8.33	ug/kg wet	1	---	---	---	---	---	---	
Aroclor 1221	ND	---	8.33	"	"	---	---	---	---	---	---	
Aroclor 1232	ND	---	8.33	"	"	---	---	---	---	---	---	
Aroclor 1242	ND	---	8.33	"	"	---	---	---	---	---	---	
Aroclor 1248	ND	---	8.33	"	"	---	---	---	---	---	---	
Aroclor 1254	ND	---	8.33	"	"	---	---	---	---	---	---	
Aroclor 1260	ND	---	8.33	"	"	---	---	---	---	---	---	
Surr: Decachlorobiphenyl (Surr)			*Recovery: 90 %*	*Limits: 60-125 %*			*Dilution: 1x*					
LCS (4040579-BS1)					Prepared: 04/21/14 09:59 Analyzed: 04/21/14 14:07							**C-07**
EPA 8082A												
Aroclor 1016	205	---	10.0	ug/kg wet	1	250	---	82	40-140%	---	---	
Aroclor 1260	254	---	10.0	"	"	"	---	102	60-130%	---	---	
Surr: Decachlorobiphenyl (Surr)			*Recovery: 92 %*	*Limits: 60-125 %*			*Dilution: 1x*					
Matrix Spike (4040579-MS1)					Prepared: 04/21/14 09:59 Analyzed: 04/21/14 14:43							**C-07**
QC Source Sample: Reedway-20140417 (A4D0430-01)												
EPA 8082A												
Aroclor 1016	191	---	10.5	ug/kg dry	1	262	ND	73	40-140%	---	---	
Aroclor 1260	240	---	10.5	"	"	"	ND	92	60-130%	---	---	
Surr: Decachlorobiphenyl (Surr)			*Recovery: 80 %*	*Limits: 60-125 %*			*Dilution: 1x*					

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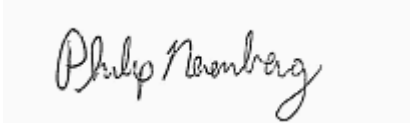

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Bridgewater Group	Project: **Doane Lake Soil Cap Source**	
4500 SW Kruse Way; Suite 110	Project Number: SIC-025	**Reported:**
Lake Oswego, OR 97035	Project Manager: Aaron Leritz	04/29/14 13:38

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4040571 - EPA 3051A							Soil					
Blank (4040571-BLK1)					Prepared: 04/21/14 08:32 Analyzed: 04/22/14 08:59							
EPA 6020A												
Antimony	ND	---	1.00	mg/kg wet	10	---	---	---	---	---	---	
Arsenic	ND	---	1.00	"	"	---	---	---	---	---	---	
Barium	ND	---	1.00	"	"	---	---	---	---	---	---	
Cadmium	ND	---	0.200	"	"	---	---	---	---	---	---	
Chromium	ND	---	1.00	"	"	---	---	---	---	---	---	
Cobalt	ND	---	0.200	"	"	---	---	---	---	---	---	
Copper	ND	---	1.00	"	"	---	---	---	---	---	---	
Iron	ND	---	50.0	"	"	---	---	---	---	---	---	
Lead	ND	---	0.200	"	"	---	---	---	---	---	---	
Manganese	ND	---	1.00	"	"	---	---	---	---	---	---	
Mercury	ND	---	0.0800	"	"	---	---	---	---	---	---	
Nickel	ND	---	1.00	"	"	---	---	---	---	---	---	
Selenium	ND	---	1.00	"	"	---	---	---	---	---	---	
Silver	ND	---	0.200	"	"	---	---	---	---	---	---	
Thallium	ND	---	0.200	"	"	---	---	---	---	---	---	
Vanadium	ND	---	1.00	"	"	---	---	---	---	---	---	
Zinc	ND	---	4.00	"	"	---	---	---	---	---	---	
Blank (4040571-BLK2)					Prepared: 04/21/14 08:32 Analyzed: 04/23/14 10:55							
EPA 6020A												
Aluminum	ND	---	50.0	mg/kg wet	10	---	---	---	---	---	---	Q-16
Beryllium	ND	---	0.200	"	"	---	---	---	---	---	---	Q-16
Molybdenum	ND	---	1.00	"	"	---	---	---	---	---	---	Q-16
LCS (4040571-BS1)					Prepared: 04/21/14 08:32 Analyzed: 04/22/14 09:02							
EPA 6020A												
Antimony	24.7	---	1.00	mg/kg wet	10	25.0	---	99	80-120%	---	---	
Arsenic	49.3	---	1.00	"	"	50.0	---	99	"	---	---	
Barium	48.0	---	1.00	"	"	"	---	96	"	---	---	
Beryllium	23.4	---	0.200	"	"	25.0	---	94	"	---	---	
Cadmium	48.6	---	0.200	"	"	50.0	---	97	"	---	---	

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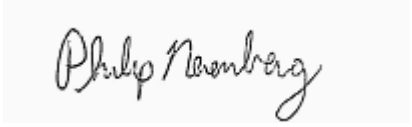

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Bridgewater Group	Project: **Doane Lake Soil Cap Source**	
4500 SW Kruse Way; Suite 110	Project Number: SIC-025	**Reported:**
Lake Oswego, OR 97035	Project Manager: Aaron Leritz	04/29/14 13:38

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4040571 - EPA 3051A							Soil					
LCS (4040571-BS1)					Prepared: 04/21/14 08:32		Analyzed: 04/22/14 09:02					
Chromium	50.4	---	1.00	mg/kg wet	"	"	---	101	"	---	---	
Cobalt	50.2	---	0.200	"	"	"	---	100	"	---	---	
Copper	49.2	---	1.00	"	"	"	---	98	"	---	---	
Iron	5090	---	50.0	"	"	5000	---	102	"	---	---	
Lead	49.8	---	0.200	"	"	50.0	---	100	"	---	---	
Manganese	51.6	---	1.00	"	"	"	---	103	"	---	---	
Mercury	0.972	---	0.0800	"	"	1.00	---	97	"	---	---	
Molybdenum	25.0	---	1.00	"	"	25.0	---	100	"	---	---	
Nickel	49.6	---	1.00	"	"	50.0	---	99	"	---	---	
Selenium	25.9	---	1.00	"	"	25.0	---	104	"	---	---	
Silver	23.7	---	0.200	"	"	"	---	95	"	---	---	
Thallium	24.1	---	0.200	"	"	"	---	96	"	---	---	
Vanadium	50.8	---	1.00	"	"	50.0	---	102	"	---	---	
Zinc	50.4	---	4.00	"	"	"	---	101	"	---	---	
LCS (4040571-BS2)					Prepared: 04/21/14 08:32		Analyzed: 04/23/14 10:58					
EPA 6020A												
Aluminum	5320	---	50.0	mg/kg wet	10	5000	---	106	80-120%	---	---	Q-16
Post Spike (4040571-PS1)					Prepared: 04/23/14 11:40		Analyzed: 04/23/14 16:29					
Aluminum	222000	---		ug/L	50	90900	125000	107	80-120%		---	
Iron	416000	---		"	"	"	284000	145	"		---	PS-02

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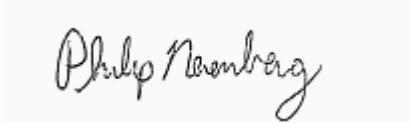

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Bridgewater Group	Project: **Doane Lake Soil Cap Source**	
4500 SW Kruse Way; Suite 110	Project Number: SIC-025	**Reported:**
Lake Oswego, OR 97035	Project Manager: Aaron Leritz	04/29/14 13:38

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4040664 - EPA 3051A							**Soil**					
Blank (4040664-BLK1)					Prepared: 04/23/14 09:22		Analyzed: 04/23/14 11:30					
EPA 6020A												
Tungsten	ND	---	1.80	mg/kg wet	10	---	---	---	---	---	---	E-03
Uranium	ND	---	1.80	"	"	---	---	---	---	---	---	E-03
LCS (4040664-BS1)					Prepared: 04/23/14 09:22		Analyzed: 04/23/14 11:31					
EPA 6020A												
Tungsten	2.75	---	1.80	mg/kg wet	10	2.50	---	110	80-120%	---	---	E-03
Uranium	3.24	---	1.80	"	"	"	---	130	"	---	---	E-03, Q-29
Duplicate (4040664-DUP1)					Prepared: 04/23/14 09:22		Analyzed: 04/23/14 11:34					
QC Source Sample: Reedway-20140417 (A4D0430-01)												
EPA 6020A												
Tungsten	ND	---	2.27	mg/kg dry	10	---	ND	---	---	---	40%	E-03
Uranium	ND	---	2.27	"	"	---	ND	---	---	---	40%	E-03
Matrix Spike (4040664-MS1)					Prepared: 04/23/14 09:22		Analyzed: 04/23/14 11:35					
QC Source Sample: Reedway-20140417 (A4D0430-01)												
EPA 6020A												
Tungsten	2.44	---	2.29	mg/kg dry	10	3.18	ND	77	75-125%	---	---	E-03
Uranium	4.70	---	2.29	"	"	"	ND	148	"	---	---	A-01, E-03

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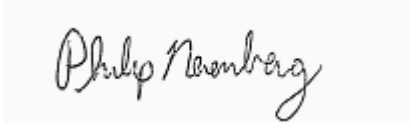

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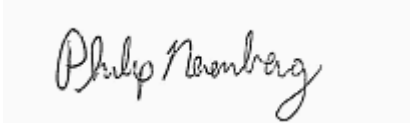
Bridgewater Group	Project: **Doane Lake Soil Cap Source**	
4500 SW Kruse Way; Suite 110	Project Number: SIC-025	**Reported:**
Lake Oswego, OR 97035	Project Manager: Aaron Leritz	04/29/14 13:38

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6010C (ICP-AES)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4040584 - EPA 3051A							Soil					
Blank (4040584-BLK1)					Prepared: 04/22/14 08:51		Analyzed: 04/25/14 12:08					
EPA 6010C												
Boron	ND	---	20.0	mg/kg wet	4	---	---	---	---	---	---	
Lithium	ND	---	4.00	"	"	---	---	---	---	---	---	
Titanium	ND	---	4.00	"	"	---	---	---	---	---	---	
Tin	ND	---	4.00	"	"	---	---	---	---	---	---	
LCS (4040584-BS1)					Prepared: 04/22/14 08:51		Analyzed: 04/25/14 12:12					
EPA 6010C												
Boron	101	---	20.0	mg/kg wet	4	100	---	101	80-120%	---	---	
Lithium	194	---	4.00	"	"	200	---	97	"	---	---	
Titanium	190	---	4.00	"	"	"	---	95	"	---	---	
Tin	40.9	---	4.00	"	"	40.0	---	102	"	---	---	
Duplicate (4040584-DUP1)					Prepared: 04/22/14 08:51		Analyzed: 04/25/14 12:20					
QC Source Sample: Reedway-20140417 (A4D0430-01)												
EPA 6010C												
Boron	ND	---	24.9	mg/kg dry	4	---	ND	---	---	---	40%	
Lithium	**6.43**	---	4.98	"	"	---	6.75	---	---	5	40%	
Titanium	**1440**	---	4.98	"	"	---	1340	---	---	7	40%	
Tin	ND	---	4.98	"	"	---	ND	---	---	---	40%	
Matrix Spike (4040584-MS1)					Prepared: 04/22/14 08:51		Analyzed: 04/25/14 12:24					
QC Source Sample: Reedway-20140417 (A4D0430-01)												
EPA 6010C												
Boron	122	---	24.9	mg/kg dry	4	125	ND	98	75-125%	---	---	
Lithium	247	---	4.97	"	"	249	6.75	97	"	---	---	
Titanium	1640	---	4.97	"	"	"	1340	120	"	---	---	
Tin	49.8	---	4.97	"	"	49.7	ND	100	"	---	---	

Apex Laboratories



Philip Nerenberg, Lab Director

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Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Bridgewater Group	Project: **Doane Lake Soil Cap Source**	
4500 SW Kruse Way; Suite 110	Project Number: SIC-025	**Reported:**
Lake Oswego, OR 97035	Project Manager: Aaron Leritz	04/29/14 13:38

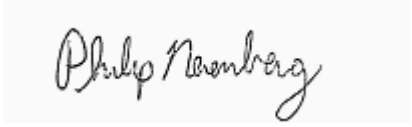
QUALITY CONTROL (QC) SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4040502 - Total Solids (Dry Weight)												**Soil**

No Client related Batch QC samples analyzed for this batch. See notes page for more information.

Apex Laboratories



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4500 SW Kruse Way; Suite 110	Project Number: SIC-025	**Reported:**
Lake Oswego, OR 97035	Project Manager: Aaron Leritz	04/29/14 13:38

SAMPLE PREPARATION INFORMATION

Hydrocarbon Identification Screen by NWTPH-HCID

Prep: NWTPH-HCID (Soil)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 4040555							
A4D0430-01	Soil	NWTPH-HCID	04/17/14 10:00	04/18/14 14:52	10.86g/10mL	10g/10mL	0.92

Volatile Organic Compounds by EPA 8260B

Prep: EPA 5035A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 4040532							
A4D0430-01	Soil	5035/8260B	04/17/14 10:00	04/17/14 16:04	12.882g/10mL	10g/10mL	0.78

Polychlorinated Biphenyls by EPA 8082A

Prep: EPA 3546

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 4040579							
A4D0430-01	Soil	EPA 8082A	04/17/14 10:00	04/21/14 09:59	11.24g/5mL	10g/5mL	0.89

Total Metals by EPA 6020 (ICPMS)

Prep: EPA 3051A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 4040571							
A4D0430-01	Soil	EPA 6020A	04/17/14 10:00	04/21/14 08:32	0.462g/50mL	0.5g/50mL	1.08
Batch: 4040664							
A4D0430-01	Soil	EPA 6020A	04/17/14 10:00	04/23/14 09:22	0.472g/50mL	0.5g/50mL	1.06

Total Metals by EPA 6010C (ICP-AES)

Prep: EPA 3051A

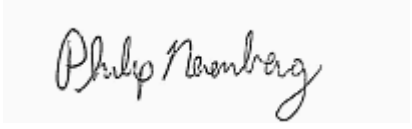
Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 4040584							
A4D0430-01	Soil	EPA 6010C	04/17/14 10:00	04/22/14 08:51	0.465g/50mL	0.5g/50mL	1.08

Percent Dry Weight

Prep: Total Solids (Dry Weight)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 4040502							

Apex Laboratories



Philip Nerenberg, Lab Director

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Tigard, OR 97223
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Bridgewater Group	Project: **Doane Lake Soil Cap Source**	
4500 SW Kruse Way; Suite 110	Project Number: SIC-025	**Reported:**
Lake Oswego, OR 97035	Project Manager: Aaron Leritz	04/29/14 13:38

SAMPLE PREPARATION INFORMATION

Percent Dry Weight

Prep: Total Solids (Dry Weight)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A4D0430-01	Soil	EPA 8000C	04/17/14 10:00	04/17/14 17:11	1N/A/1N/A	1N/A/1N/A	NA

Apex Laboratories

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Philip Nerenberg, Lab Director

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4500 SW Kruse Way; Suite 110	Project Number: SIC-025	**Reported:**
Lake Oswego, OR 97035	Project Manager: Aaron Leritz	04/29/14 13:38

Notes and Definitions

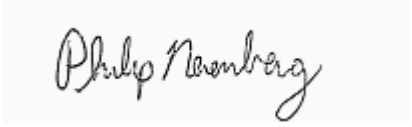
Qualifiers:

A-01	Recovery of MS was outside control limits. Results may be biased high. All associated samples were ND for this element.
C-07	Extract has undergone Sulfuric Acid Cleanup by EPA 3665A, Sulfur Cleanup by EPA 3660B, and Florisil Cleanup by EPA 3620B in order to minimize matrix interference.
E-03	Result is reported as an estimated value. QA protocols have not been met for this analyte.
EST	Result reported as an Estimated Value. Recovery for Lab Control Spike (LCS) is above the upper control limit. Data may be biased high.
Q-16	Reanalysis of an original Batch QC sample.
Q-29	Recovery for Lab Control Spike (LCS) is above the upper control limit. Data may be biased high.
V-15	Sample aliquot was subsampled from the sample container. The subsampled aliquot was preserved in the laboratory within 48 hours of sampling.

Notes and Conventions:

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis. Results listed as 'wet' or without 'dry'designation are not dry weight corrected.
RPD	Relative Percent Difference
MDL	If MDL is not listed, data has been evaluated to the Method Reporting Limit only.
WMSC	Water Miscible Solvent Correction has been applied to Results and MRLs for volatiles soil samples per EPA 8000C.
Batch QC	Unless specifically requested, this report contains only results for Batch QC derived from client samples included in this report. All analyses were performed with the appropriate Batch QC (including Sample Duplicates, Matrix Spikes and/or Matrix Spike Duplicates) in order to meet or exceed method and regulatory requirements. Any exceptions to this will be qualified in this report. Complete Batch QC results are available upon request. In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) is analyzed to demonstrate accuracy and precision of the extraction and analysis.
Blank Policy	Apex assesses blank data for potential high bias down to a level equal to ½ the method reporting limit (MRL), except for conventional chemistry and HCID analyses which are assessed only to the MRL. Sample results flagged with a B or B-02 qualifier are potentially biased high if they are less than ten times the level found in the blank for inorganic analyses or less than five times the level found in the blank for organic analyses. For accurate comparison of volatile results to the level found in the blank; water sample results should be divided by the dilution factor, and soil sample results should be divided by 1/50 of the sample dilution to account for the sample prep factor. Results qualified as reported below the MRL may include a potential high bias if associated with a B or B-02 qualified blank. B and B-02 qualifications are not applied to J qualified results reported below the MRL.
---	QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.
***	Used to indicate a possible discrepency with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

Apex Laboratories



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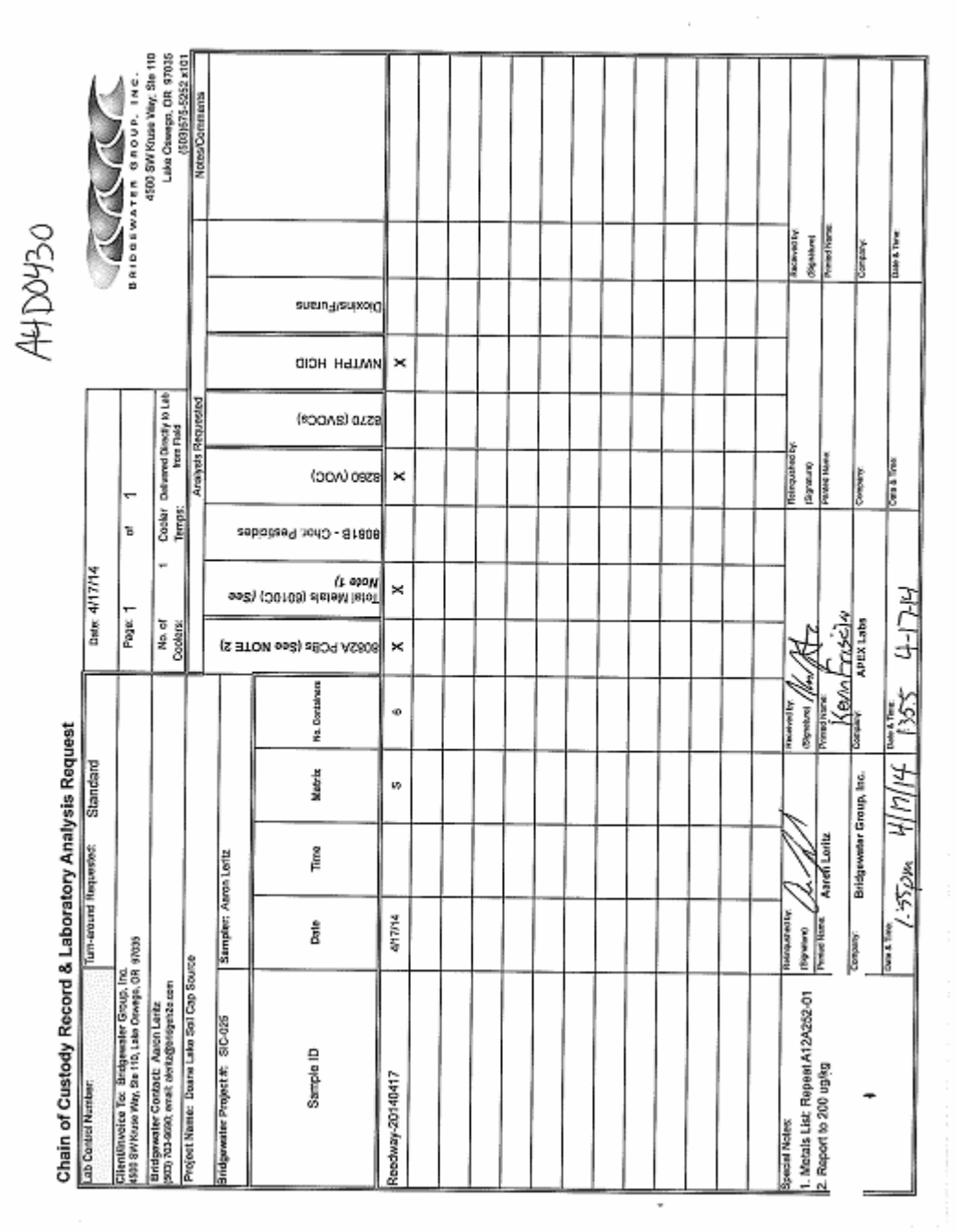

Apex Laboratories

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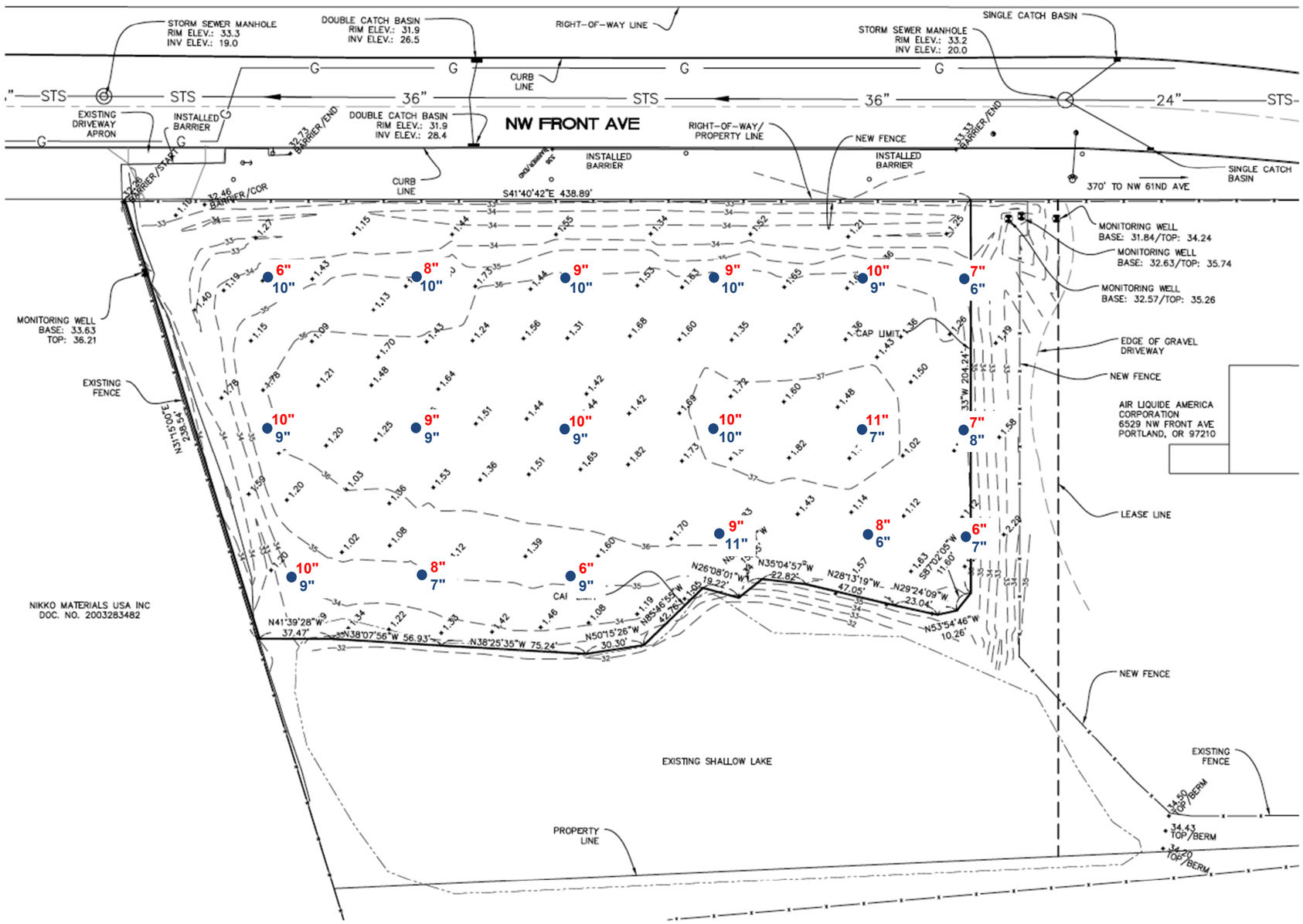
Philip Nerenberg, Lab Director

Attachment 5

Cap Thickness Survey Results

DOANE LAKE CAP DEPTH MAP

LOCATED IN SECTION 13,
T1N R1W, W.M.
PART OF TAX LOT 700
MAP 01N01W13
PORTLAND, OREGON



GRAPHIC SCALE
60 0 30 60
(IN FEET)
1 inch = 60 ft. (11 x 17)
1 inch = 30 ft. (24 x 36)

LEGEND

(M)	MEASURED DISTANCE		POWER POLE
(P)	PLATTED DISTANCE		SIGN/LIGHT POST
(R)	RECORDED DISTANCE		HYDRANT
(D)	DEEDED DISTANCE		TREE – DECIDUOUS
	FOUND CORNER		TREE – CONIFEROUS
	SET CORNER	—X—	FENCE – CHAIN LINK
	CENTERLINE	—G—	GAS LINE
	PROPERTY LINE	—STS—	STORM SEWER LINE
	WATER VALVE		WATER LINE (5/5/2011)
	POWER POLE		Depth Measurement Loation
	POWER POLE WITH GUY WIRE	8" / 7"	First Layer (quarry material) / Second Layer (topsoil material)
X.XX	SURVEY POINT SHOWING ELEVATION DIFFERENCE BETWEEN PRE–CAP AND POST–CAP SURVEYS		
	CONTOUR LINE (POST–CAP)		
XXX	SURVEY POINT SHOWING SPOT ELEVATION AND DESCRIPTION		

Figure 7
Initial and Final Layer Thicknesses
Doane Lake Source Control
MMGL Corp.

REGISTERED PROFESSIONAL LAND SURVEYOR
OREGON
JANUARY 23, 1990
DALE L. HULT
2427
RENEWS 07/01/15

CLIENT: BRIDGEWATER GROUP INC.

Tall Timber Surveyors & Planners, Inc.
Surveying, Planning and Civil Engineering
P.O. Box 955 Sandy, OR 97055
Phone: (503) 668-3151
Fax: (503) 668-4730

14-087 Doane Lake.DWG DATE OF PLOT: 9-10-2014

Attachment 6

2015 Annual Inspection Report

Subject: 2015 MMGL Corp. Doane Lake Annual Inspection Report, ESCI Site ID No. 395

PREPARED FOR: Brenda Anderson/MMGL
PREPARED BY: Aaron Leritz/Bridgewater Group, Inc.

COPIES:

DATE: September 24, 2015

This technical memorandum serves as the annual report (Annual Report) for the MMGL Corp. (formerly Schnitzer Investment Corp.) Doane Lake Property, 6529 NW Front Avenue, Portland, which includes portions of Tax Lot (TL) 700, Multnomah County, Oregon (the Site) (Figure 1 and Figure 2).

In the May 9, 2013 Source Control Decision (SCD), the Oregon Department of Environmental Quality (DEQ) approved source control measures consisting of soil removal, capping, and institutional controls for the Site (i.e., Source Control Measures, or SCMs). Figure 3 shows the general SCM design. The soil removal and capping activities were completed in August 2014 and documented in an October 2014 *Source Control Measures Completion Report*. In accordance with the SCD, a May 26, 2015 *Soil and Cap Management Plan* (SCMP) was prepared for the Site.

The SCMP requires an annual cap inspection to verify substantial conformance with the design specifications for the first five years after the source control actions were completed. The SCMP requires an inspection every five years thereafter, with the option to reduce inspections after the completion of six inspections. This Annual Report presents the results of the first annual cap inspection for the Site.

The SCMP also requires twice per month stormwater inspections for the duration of the DEQ 1200-C Construction Stormwater permit (1200-C Permit) and quarterly inspections thereafter. The 1200-C Permit is still active. Documentation of the storm water inspections are also presented in this Annual Report.

Post -Source Control Measure Site Conditions

In accordance with the SCM design specifications, MMGL graded and capped the site with 6-inches of compacted, imported quarry material, followed by 6-inches of compacted, imported sandy loam. The quarry material was well-graded sand and gravel with less than 20 percent fines. MMGL installed a grey non-woven geotextile fabric as a demarcation layer prior to the placement of the two layers of cap material. MMGL hydroseeded the entire cap area subsequent to final grading and compaction. Figure 4 shows the final as-built conditions after the capping was completed in August 2014.

A stormwater swale was installed around the cap area that collects stormwater and conveys it to an on-site natural pond (e.g. remnant Doane Lake). The stormwater system is designed to contain 100 percent of the Site's stormwater. Inspections conducted during 2014-2015 rainy season indicate that no stormwater discharged from the site.

Results of Cap Inspection

Bridgewater Group, Inc. (Bridgewater) performed a site visit on September 4, 2015 to perform the cap inspection. The entire Site and stormwater drainage system was inspected including: the perimeter stormwater swales, cap, cap vegetation, and energy dissipation rock at the end of the stormwater swales. Bridgewater walked several transects across the Site while performing the cap inspection.

Bridgewater considered the statements discussed below as part of the cap inspection.

1. **Is there visible evidence of stormwater or wind erosion or cracks or impairments of any kind of the cap or stormwater swales?**

   Results: In November 2014, Bridgewater noticed limited erosion, as evidenced by rills, starting in an area outside the cap area on the slopes of the southern[1] swale. The rills were repaired December 2014 by re-locating the eroded sediment from the bottom of the swale and to the rilled areas. MMGL also installed wattles to prevent further erosion while vegetation continued to establish. The vegetation and wattles slowed the erosion through the rainy season but did not eliminate it. This area continues to be monitored and additional corrective actions will be implemented as necessary.

   In November 2014, Bridgewater observed a sunken area or "low spot" in the cap where settling had occurred and water was ponding. The ponding water prevented grass seed germination in that area. Further, the pond was flowing to the stormwater swale such that it was creating erosion channels in the northeast portion of the Site. The areas where the erosion channels were observed met the cap design minimum thickness at the conclusion of construction, however; the area was approximately 1-2-feet lower in elevation compared to the remainder of the cap contour lines. The lower elevations were intentional in this area to allow easier access of equipment onto the Site in the future. The potential erosional characteristics caused by this elevation drop were not anticipated. MMGL notified DEQ of erosion observations during a December 2014 Site planning meeting.

   At the request of DEQ, MMGL implemented a cap augmentation project in August 2015 to eliminate the ponding and raise the grade in the northeast portion of the Site to prevent continued or future erosion issues. The cap augmentation included the following:

   - Stripping and stockpiling approximately 11,000 square feet of the 6-inch layer of sandy loam top soil;
   - Importing, grading, and compacting with the trackhoe, approximately 250 tons (approximately 190 cubic yards) of Knife River quarry material (well-graded sand and gravel with less than 20 percent fines per the cap specifications and work plan);
   - Re-grading and compacting the top soil over the quarry material; and
   - Applying hydroseed to all disturbed areas of the Site.

[1] All direction references are "Project" based and not true directional descriptions. See Figure 2.

The cap augmentation work was completed in August 2015. Figure 5 shows the area of the cap augmentation work. Photographs of the cap augmentation work are provided in the photograph log provided in Attachment A.

No wind erosion, cracks or other impairments were noted during the inspection.

2. **Is there visible evidence of cap material settling or stormwater ponding?**

   Results. As discussed above, an area approximately 20 feet by 20 feet settled near the northeast corner of the Site allowing stormwater to pond (Figure 4). Another smaller area (approximately 10 feet by 10 feet) was observed in the southeast portion of the Site. This area was also repaired during the August 2015 cap augmentation project.

3. **Is demarcation layer (grey geotextile fabric) visible at any part of the Site?**

   Result: The demarcation layer was not visible within the capped area of the Site.

4. **Are there areas at the Site that require additional hydroseeding or other repairs of any kind?**

   Result: Hydroseeding was augmented during the August 2015 cap work. At this time it appears adequate. It will continue to be monitoring during stormwater inspections and will be augmented in the future if needed. No other repairs appear necessary.

5. **Are there signs of unauthorized use of the Site or repairs needed to fencing?**

   Result: There were no signs of unauthorized use. The fence appears as installed and no repairs are needed at this time.

In conclusion, the September 4, 2015, inspection indicates that the Site cap is in substantial conformance with the design specifications.

Bridgewater and MMGL collected photographs of the Site during stormwater inspections starting in May 2015 to the present. A photograph log documenting the condition of the cap during this duration is provided in Attachment A.

Stormwater Inspection Results

In accordance with the Site's DEQ 1200-C Stormwater Construction Permit and the SCMP, MMGL conducted twice-monthly inspections of the stormwater system including the stormwater swales, remnant lake, and condition of the cap vegetation. The purpose of the stormwater inspections is to verify the stormwater containment and conveyance system is functioning substantially as designed and there is no stormwater discharge from the Site. A stormwater inspection form documenting the results of each twice-monthly inspection was completed during each inspection. The completed stormwater inspection forms are provided in Attachment B.

The November 2014 inspections revealed the need for the addition of wattles in the south swale installed in December 2014 and the need for the cap augmentation work completed in August 2015. Off-site stormwater discharges were not observed. Vegetation growth at the Site was successful as shown in the photograph log (Attachment B). However, the severely

dry and warm summer of 2015 caused distressed vegetation. The Site vegetation will continue to be monitored and corrective actions will be taken if the grass does not re-establish with the onset of the rain season.

No further actions are recommended at this time. Please contact me 503.675.0297 with questions.

Figures

Project North

True North

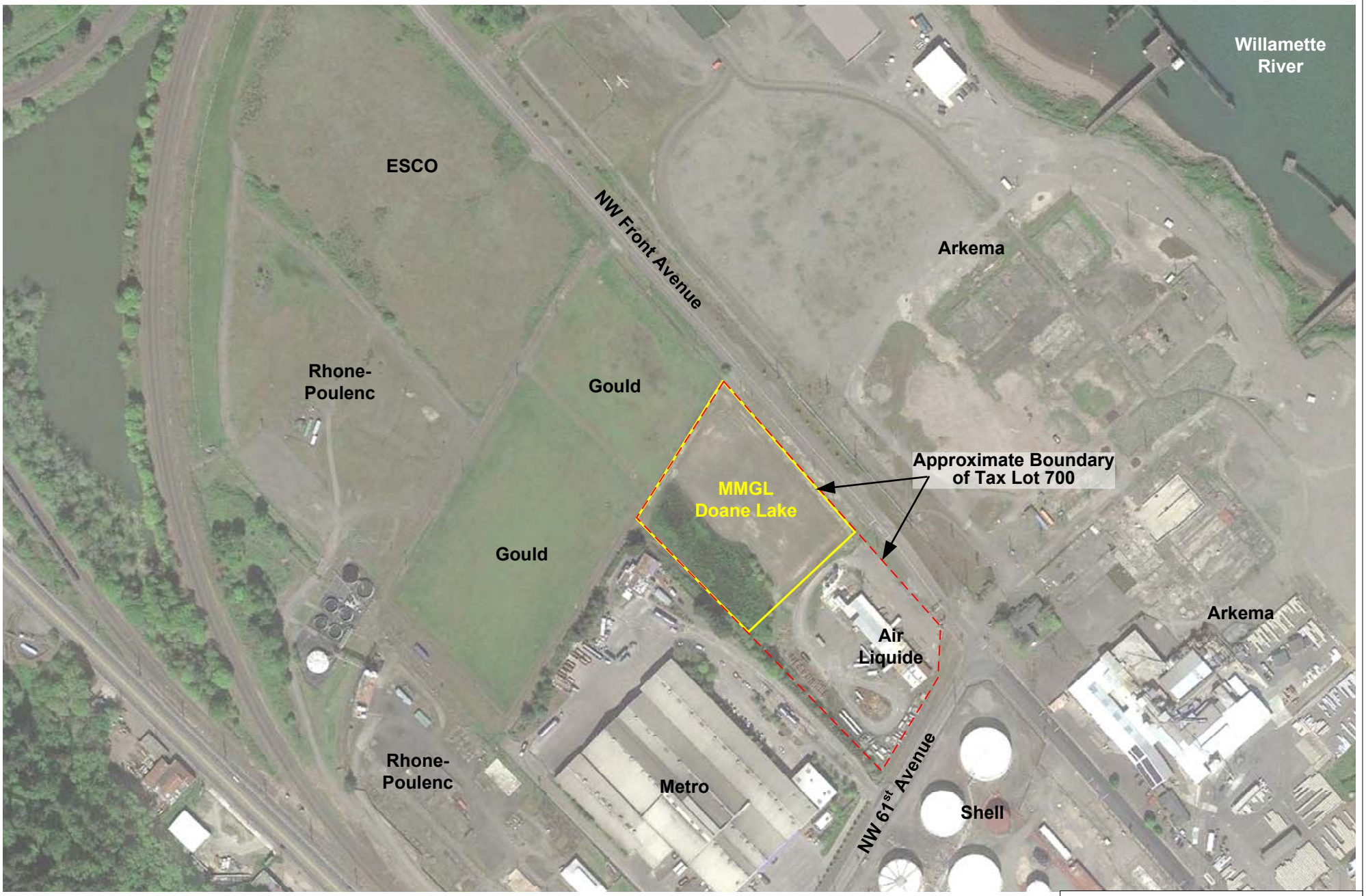
Approximate Scale

3600 Feet

Base photograph April 2015

Figure 1
Site Location
MMGL Doane Lake Property
Portland, OR

BRIDGEWATER GROUP, INC.



Project North

True North

Approximate Scale

300 Feet

Base photograph April 2015

Figure 2
Site Vicinity
MMGL Doane Lake Property
Portland, OR

BRIDGEWATER GROUP, INC.

STORM SEWER MANHOLE
RIM ELEV.: 33.3
INV ELEV.: 19.0

N.W. Front Avenue

Gate 1 – Remove & Replace

Ex. Fence – Remove & Replace

Power Pole

EXISTING CURB

PROPERTY LINE

TOP OF BERM CENTERLINE

FIRE HYD

MONITORING WELL
BASE: 32.63/TOP: 35.74

MONITORING WELL
BASE: 32.57/TOP: 35.26

MONITORING WELL
BASE: 31.64/TOP: 34.24

MONITORING WELL
BASE: 33.63
TOP: 36.21

GATE

BD=33.05

HI=34.11

TB=34.78 TB=34.02 TB=34.23 TB=34.44 TB=34.29 TB=34.20

FL=33.25 FL=33.35 FL=33.56 FL=33.77 FL=33.21 FL=32.87

SWALE FLOW LINE SLOPE=0.50%

SWALE HIGH POINT

SWALE FLOW LINE SLOPE=0.35%

TP=34.40 TP=34.40

FL=33.11 FL=32.97

FL=32.68 FL=33.35

FL=32.56 FL=33.05

FL=33.05

FL=32.35

Fence (New)

EDGE OF DRIVEWAY

Ex. Fence Remove

Cap Area (Area 2) (Expanded Area Constructed)

Cap Area (Area 2) (Proposed)

Cap Area (Area 2) (Constructed)

A

A

B

B

TP=35.19 FL=32.57

TP=33.96 FL=32.27

FL=32.12 TP=33.73

TP=33.41

TP=34.27

TP=34.50

RIP RAP ENERGY DISSIPATOR
NOTE: USE WELL GRADED ROUGH QUARRY STONE CONSISTING OF 6 INCH MINIMUM DIAMETER ROCK D50.
SEE DETAIL SHEET 4 ENERGY DISSIPATER.

END OF FLOW LINE
FL=32.00

RIP RAP ENERGY DISSIPATER
NOTE: USE WELL GRADED ROUGH QUARRY STONE CONSISTING OF 6 INCH MINIMUM DIAMETER ROCK D50.
SEE DETAIL SHEET 4 ENERGY DISSIPATER.

Gate – 3 (New)

EXISTING POND

Project North

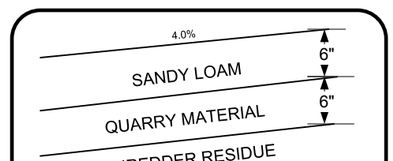
True North

0 20 40
SCALE IN FEET

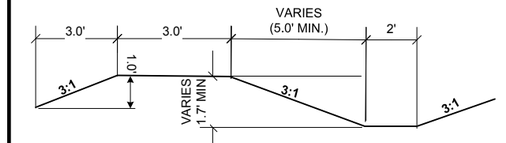
BRIDGEWATER REVISION 5/6/14

Legend

- – – – Boundary of Cap
- ····· Six Foot Tall Chain Link Fence topped with barbed wire



B – B TYPICAL CAP CROSS SECTION



A – A TYPICAL SWALE CROSS SECTION

DOANE SITE 6/19/12

DRAWING NO. 1
PROJECT NO.

DOANE LAKE CAP
NW FRONT AVENUE
PORTLAND, OREGON

SITE PLAN

TRT ENGINEERING LLC
2836 S.E. MARKET STREET
PORTLAND, OREGON 97214
PHONE (503) 235-7892
FAX (503) 235-7893

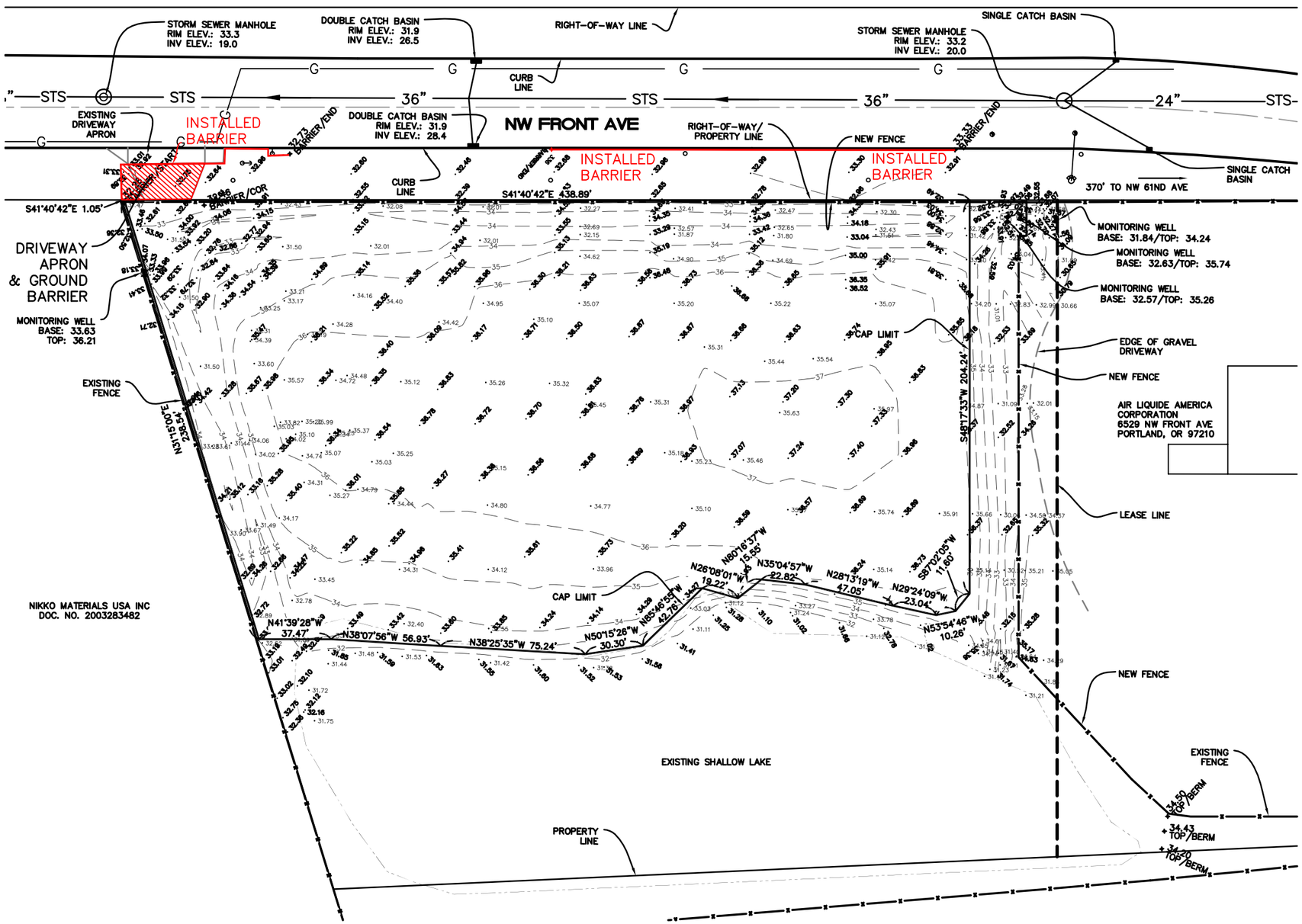
REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY
DATE OF ISSUE JUN 2012			TRT			

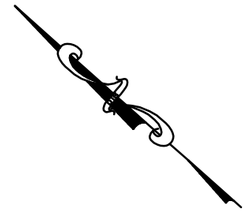
Figure 3

Capping & Grading Plan

DOANE LAKE AS-BUILT MAP

LOCATED IN SECTION 13,
T1N R1W, W.M.
PART OF TAX LOT 700
MAP 01N01W13
PORTLAND, OREGON





GRAPHIC SCALE
60 0 30 60
(IN FEET)
1 inch = 60 ft. (11 x 17)
1 inch = 30 ft. (24 x 36)

LEGEND

(M)	MEASURED DISTANCE		POWER POLE
(P)	PLATTED DISTANCE		SIGN/LIGHT POST
(R)	RECORDED DISTANCE		HYDRANT
(D)	DEEDED DISTANCE		TREE – DECIDUOUS
●	FOUND CORNER		TREE – CONIFEROUS
○	SET CORNER	—X—	FENCE – CHAIN LINK
– – –	CENTERLINE	—G—	GAS LINE
———	PROPERTY LINE	—STS—	STORM SEWER LINE
	WATER VALVE	– – – – –	WATER LINE (5/5/2011)
	POWER POLE		
	POWER POLE WITH GUY WIRE		
.XXX	SURVEY POINT SHOWING FINISH ELEVATION		
	CONTOUR LINE (POST–CAP)		
XXX.XX XXX	SURVEY POINT SHOWING SPOT ELEVATION AND DESCRIPTION		
·31.50	SURVEY POINT SHOWING PRE–CAP ELEVATION		

Figure 4
As-Built Drawing
Doane Lake Source Control Action
MMGL Corp.

REGISTERED PROFESSIONAL LAND SURVEYOR
OREGON
JANUARY 23, 1990
DALE L. HULT
2427
RENEWS 07/01/15

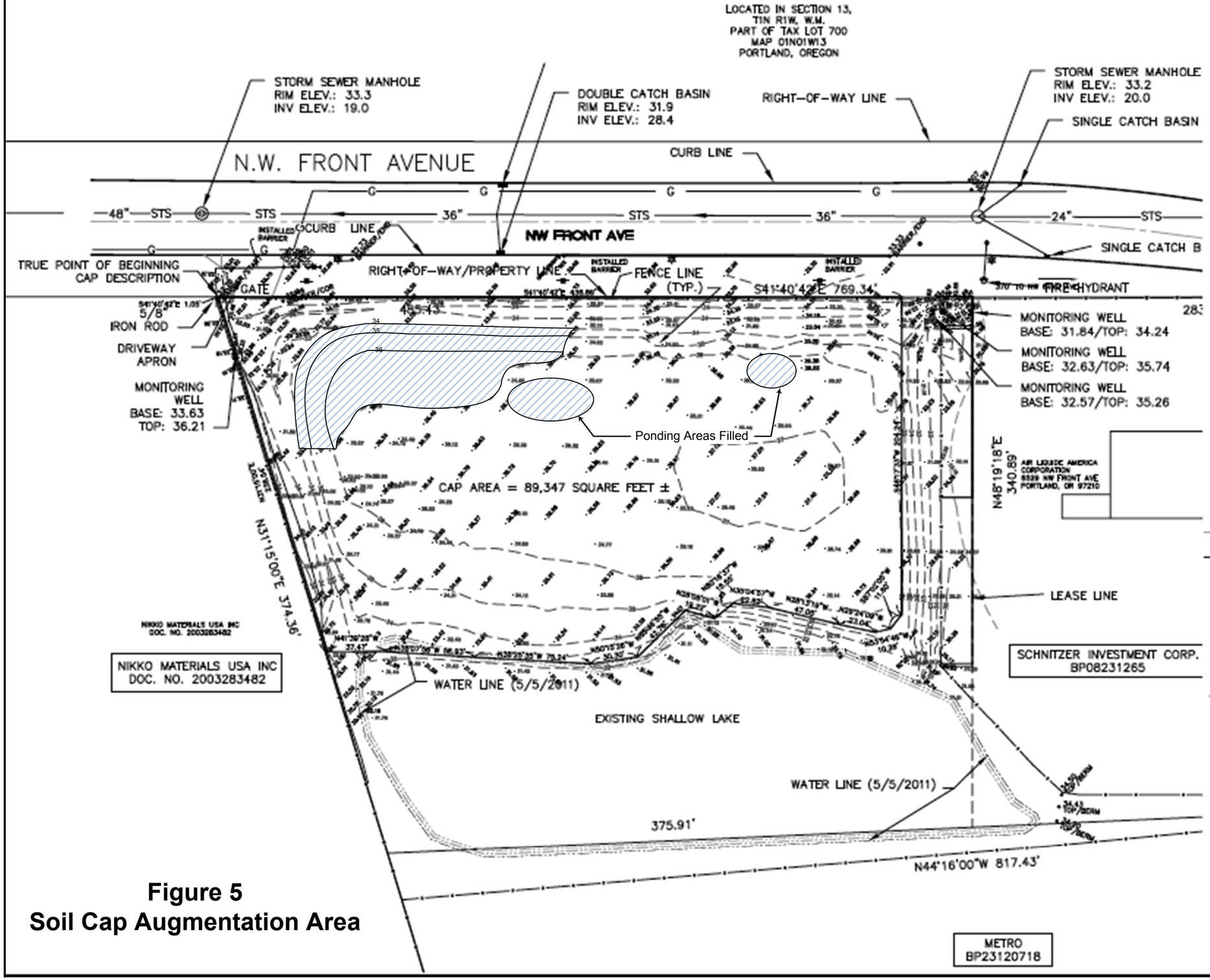
CLIENT: BRIDGEWATER GROUP INC.

Surveyors & Planners, Inc.
Surveying, Planning and Civil Engineering
P.O. Box 955 Sandy, OR 97055
Phone: (503) 668-3151
Fax: (503) 668-4730

14-087 Doane Lake.DWG DATE OF PLOT: 9-10-20

DOANE LAKE CAP AREA MAP

LOCATED IN SECTION 13,
T1N R1W, W.M.
PART OF TAX LOT 700
MAP 01N01W13
PORTLAND, OREGON



GRAPHIC SCALE

LEGEND

(M)	MEASURED DISTANCE		POWER POLE
(P)	PLATTED DISTANCE		SIGN/LIGHT POST
(R)	RECORDED DISTANCE		HYDRANT
(D)	DEEDED DISTANCE		TREE – DECIDUOUS
	FOUND CORNER		TREE – CONIFEROUS
	SET CORNER	—X—	FENCE – CHAIN LINK
	CENTERLINE	—G—	GAS LINE
	PROPERTY LINE	—STS—	STORM SEWER LINE
	WATER VALVE		WATER LINE (5/5/2011)
	POWER POLE		
	POWER POLE WITH GUY WIRE		
	SURVEY POINT SHOWING FINISH ELEVATION		
	CONTOUR LINE (POST-CAP)		
	SURVEY POINT SHOWING SPOT ELEVATION AND DESCRIPTION		
	SURVEY POINT SHOWING PRE-CAP ELEVATION		

Cap Augmentation Area

REGISTERED
PROFESSIONAL
LAND SURVEYOR
OREGON
JANUARY 23, 1990
DALE L. HULT
2427
RENEWS 07/01/15

CLIENT: BRIDGEWATER GROUP INC.

Surveyors & Planners, Inc.
Surveying, Planning and
Civil Engineering
P.O. Box 955 Sandy, OR 97055
Phone: (503) 668-3151
Fax: (503) 668-4730

14-087 Doane Lake.DWG DATE OF PLOT: 9-10-2014

Figure 5
Soil Cap Augmentation Area

Attachment A

Doane Lake Cap Inspection Report Photograph Log

Doane Lake May 4, 2015. South swale and cap area.

Doane Lake May 4, 2015. Northeast corner near gate. Sand bags installed December 2015 to minimize erosion.

Doane Lake June 4, 2015. Northwest corner looking south. Remnant lake in right of photo.

Doane Lake June 4, 2015. Northeast corner looking west.

Doane Lake June 4, 2015. Southeast corner looking north.

Doane Lake June 30, 2015. Northeast corner looking west.

Doane Lake June 30, 2015. Northeast corner of cap area.

Doane Lake June 30, 2015. East swale looking south from northeast corner.

Doane Lake August 9, 2015. Cap augmentation work northeast corner. Stripping topsoil.

Doane Lake August 9, 2015. Cap augmentation work. Quarry material placed.

Doane Lake August 10, 2015. Cap augmentation work, northeast corner near gate. Graded quarry material.

Doane Lake August 10, 2015. Cap augmentation northeast corner. Grading quarry material.

Doane Lake August 10, 2015. Southwest cap area, looking north.

Doane Lake August 10, 2015. North swale looking east.

Doane Lake August 18, 2015. Post cap augmentation, graded, compacted, and hydroseeded. Northeast corner near gate, looking southwest across Site.

Doane Lake August 18, 2015. Post cap augmentation, graded, compacted, and hydroseeded. Northeast corner near gate, looking south along east swale.

Attachment B

Doane Lake Stormwater Inspection Forms

STORMWATER 1200-C INSPECTION FORM

BRIDGEWATER GROUP, INC.

Client: MMGL CORP.		Job Number:	SIC-024
Project: DOANE SOURCE CONTROL ACTIONS		Date:	6/16/14
Site: DOANE LAKE		Inspector:	A. LERITZ
Weather: RAIN SHOWERS, 55F		Time:	10:45 AM

OBSERVATIONS AT EACH DISCHARGE LOCATION (THERE ARE NO DIRECT DISCARGES TO SURFACE WATER, INSPECTION SHOULD VERIFY)

DOANE LAKE POND TO GOULD: NO DISCHARGE

AT GATE: TYPICALLY THE STORMWATER AT GATE SHOULD RUN-ON TO THE MMGL DOANE LAKE SITE. OBSERVE THIS TO ENSURE IT IS OCCURING AND STORMWATER IS NOT DISCHARGING. **NO DISHARGE**

WALK THE SITE TO ENSURE THERE ARE NO OTHER STORMWATER DISCHARGE LOCATIONS. **DISCHARGE TO CBs in Front Ave. Clear discharge at first inspection. Turbidity noted in street but was not discharging to CBs. At later inspection, very slight turbidty discharging to CBs with sediment inserts.**

OBSERVATIONS MUST INCLUDE COLOR OF THE WATER BEING DISCHARGED, IF TURBID OR CLEAR.
DESCRIBE ANY OIL SHEEN OR OTHER FLOATING SOLIDS - **No floating solids or oil sheen.**

BMP OBSERVATIONS (NOTE CONDITION AS GOOD OR NOTE IMPROVEMENTS NEEDED)

SILT FENCES: **Good**

CONSTRUCTION ENTRACE: **Good**

WATTLES AT ENTRACE: **Good**

BIO-BAG CHECK DAM: **Good**

IF STOCKPILES PRESENT ARE THEY TARPED (IF NOT BEING WORKED) **Yes, tarped and wattles at toe.**

DID ANY BMPS FAIL TO OPERATE CORRECTLY? Due to conditions, trucks with mug entered road. Construction entrance was not enough. Work was halted for the day to prevent any more tracking.

IF SO, IDENTIFY THE BMP AND ACTION NEEDED:Conditions were too extreme. BMPs OK. Called sweeper to site to remove mud from street. Was completed at 11:45 AM.

ARE BMPS NEEDED IN AREAS THEY WERE NOT ALREADY IMPLEMENTED? NO

IF SO, IDENTIFY THE BMP LOCATION AND ACTION NEEDED: N/A

IF CORECTIVE ACTIONS ARE NEEDED, IDENTIFY THE DATE THEY WILL BE COMPLETED: Corrective actions complete, called sweeper to site to remove mud that entered street. Will stop work earlier to prevent future tracking.

DOCUMENT THE DATE CORRECTIONS WERE IMPLEMENTED: 06-16-2014 at 1145 AM.

STORMWATER 1200-C INSPECTION FORM

BRIDGEWATER GROUP, INC.

Client:	MMGL Corp	Job Number:	SIC-024
Project:	Doane Lake Source Control Actions	Date:	6/25/14
Site:	Doane Lake	Inspector:	A. Leritz
Weather:	Cloudy, light drizzle	Time:	7:45 AM

OBSERVATIONS AT EACH DISCHARGE LOCATION (THERE ARE NO DIRECT DISCARGES TO SURFACE WATER, INSPECTION SHOULD VERIFY)

DOANE LAKE POND TO GOULD: No discharge

AT GATE: TYPICALLY THE STORMWATER AT GATE SHOULD RUN-ON TO THE MMGL DOANE LAKE SITE. OBSERVE THIS TO ENSURE IT IS OCCURING AND STORMWATER IS NOT DISCHARGING. Good no discharge

WALK THE SITE TO ENSURE THERE ARE NO OTHER STORMWATER DISCHARGE LOCATIONS. Good no discharges. However rills developed on the western side. Additional top soil needed when layer completed.

OBSERVATIONS MUST INCLUDE COLOR OF THE WATER BEING DISCHARGED, IF TURBID OR CLEAR. Good no discharges
DESCRIBE ANY OIL SHEEN OR OTHER FLOATING SOLIDS

BMP OBSERVATIONS (NOTE CONDITION AS GOOD OR NOTE IMPROVEMENTS NEEDED)

SILT FENCES: Silt fence along Air Liquide has several penetrations due to AL pushing temp chain link fencing holders through the sediment fence. SW corner at AL side needs repair. Silt fence on western side near lake about 1/3rd filled with sediment. Needs cleanout.

CONSTRUCTION ENTRACE: Good

WATTLES AT ENTRACE: Good

BIO-BAG CHECK DAM: Good

IF STOCKPILES PRESENT ARE THEY TARPED (IF NOT BEING WORKED): No stockpiles.

DID ANY BMPS FAIL TO OPERATE CORRECTLY? NO

IF SO, IDENTIFY THE BMP AND ACTION NEEDED:

ARE BMPS NEEDED IN AREAS THEY WERE NOT ALREADY IMPLEMENTED? NO

IF SO, IDENTIFY THE BMP LOCATION AND ACTION NEEDED:

IF CORECTIVE ACTIONS ARE NEEDED, IDENTIFY THE DATE THEY WILL BE COMPLETED: 6/26/14 (Munitor not onsite today)

DOCUMENT THE DATE CORRECTIONS WERE IMPLEMENTED: 6/26/14. Munitor came onsite to repair fence. On 6/30/14 Munitor re-graded rills and cleanout sediment fences along western side of site.

STORMWATER 1200-C INSPECTION FORM

BRIDGEWATER GROUP, INC.

Client:	MMGL Corp	Job Number:	SIC-024
Project:	Doane Lake Source Control Actions	Date:	6/30/14
Site:	Doane Lake	Inspector:	A. Leritz
Weather:	Sunny, warm	Time:	8:25 AM

OBSERVATIONS AT EACH DISCHARGE LOCATION (THERE ARE NO DIRECT DISCARGES TO SURFACE WATER, INSPECTION SHOULD VERIFY)

DOANE LAKE POND TO GOULD: No discharge

AT GATE: TYPICALLY THE STORMWATER AT GATE SHOULD RUN-ON TO THE MMGL DOANE LAKE SITE. OBSERVE THIS TO ENSURE IT IS OCCURING AND STORMWATER IS NOT DISCHARGING. Good no discharge

WALK THE SITE TO ENSURE THERE ARE NO OTHER STORMWATER DISCHARGE LOCATIONS. Good no discharges.

OBSERVATIONS MUST INCLUDE COLOR OF THE WATER BEING DISCHARGED, IF TURBID OR CLEAR. Good no discharges
DESCRIBE ANY OIL SHEEN OR OTHER FLOATING SOLIDS

BMP OBSERVATIONS (NOTE CONDITION AS GOOD OR NOTE IMPROVEMENTS NEEDED)

SILT FENCES: Good

CONSTRUCTION ENTRACE: Good

WATTLES AT ENTRACE: Good

BIO-BAG CHECK DAM: Good

IF STOCKPILES PRESENT ARE THEY TARPED (IF NOT BEING WORKED): No stockpiles.

DID ANY BMPS FAIL TO OPERATE CORRECTLY? NO

IF SO, IDENTIFY THE BMP AND ACTION NEEDED:

ARE BMPS NEEDED IN AREAS THEY WERE NOT ALREADY IMPLEMENTED? NO

IF SO, IDENTIFY THE BMP LOCATION AND ACTION NEEDED:

IF CORECTIVE ACTIONS ARE NEEDED, IDENTIFY THE DATE THEY WILL BE COMPLETED: N/A

DOCUMENT THE DATE CORRECTIONS WERE IMPLEMENTED:

STORMWATER 1200-C INSPECTION FORM

BRIDGEWATER GROUP, INC.

Client:	MMGL Corp	Job Number:	SIC-024
Project:	Doane Lake Source Control Actions	Date:	7/8/14
Site:	Doane Lake	Inspector:	A. Leritz
Weather:	Sunny, hot	Time:	8:25 AM

OBSERVATIONS AT EACH DISCHARGE LOCATION (THERE ARE NO DIRECT DISCARGES TO SURFACE WATER, INSPECT TO VERIFY)

DOANE LAKE POND TO GOULD: No discharge

AT GATE: TYPICALLY THE STORMWATER AT GATE SHOULD RUN-ON TO THE MMGL DOANE LAKE SITE. OBSERVE THIS TO ENSURE IT IS OCCURING AND STORMWATER IS NOT DISCHARGING. Good no discharge

WALK THE SITE TO ENSURE THERE ARE NO OTHER STORMWATER DISCHARGE LOCATIONS. Good no discharges.

OBSERVATIONS MUST INCLUDE COLOR OF THE WATER BEING DISCHARGED, IF TURBID OR CLEAR. Good no discharges
DESCRIBE ANY OIL SHEEN OR OTHER FLOATING SOLIDS

BMP OBSERVATIONS (NOTE CONDITION AS GOOD OR NOTE IMPROVEMENTS NEEDED)

SILT FENCES: Good

CONSTRUCTION ENTRACE: Good

WATTLES AT ENTRACE: Good

BIO-BAG CHECK DAM: Good

IF STOCKPILES PRESENT ARE THEY TARPED (IF NOT BEING WORKED): No stockpiles.

DID ANY BMPS FAIL TO OPERATE CORRECTLY? NO

IF SO, IDENTIFY THE BMP AND ACTION NEEDED:

ARE BMPS NEEDED IN AREAS THEY WERE NOT ALREADY IMPLEMENTED? NO

IF SO, IDENTIFY THE BMP LOCATION AND ACTION NEEDED:

IF CORECTIVE ACTIONS ARE NEEDED, IDENTIFY THE DATE THEY WILL BE COMPLETED: N/A

DOCUMENT THE DATE CORRECTIONS WERE IMPLEMENTED:

STORMWATER 1200-C INSPECTION FORM

BRIDGEWATER GROUP, INC.

Client:	MMGL Corp	Job Number:	SIC-024
Project:	Doane Lake Source Control Actions	Date:	7/22/14
Site:	Doane Lake	Inspector:	A. Leritz
Weather:	Sunny, dry	Time:	10:15 AM

OBSERVATIONS AT EACH DISCHARGE LOCATION (THERE ARE NO DIRECT DISCARGES TO SURFACE WATER, INSPECT TO VERIFY

DOANE LAKE POND TO GOULD: No discharge

AT GATE: TYPICALLY THE STORMWATER AT GATE SHOULD RUN-ON TO THE MMGL DOANE LAKE SITE. OBSERVE THIS TO ENSURE IT IS OCCURING AND STORMWATER IS NOT DISCHARGING. Good no discharge

WALK THE SITE TO ENSURE THERE ARE NO OTHER STORMWATER DISCHARGE LOCATIONS. Good no discharges.

OBSERVATIONS MUST INCLUDE COLOR OF THE WATER BEING DISCHARGED, IF TURBID OR CLEAR. Good no discharges
DESCRIBE ANY OIL SHEEN OR OTHER FLOATING SOLIDS

BMP OBSERVATIONS (NOTE CONDITION AS GOOD OR NOTE IMPROVEMENTS NEEDED)

Site inactive. Hydromulch scheduled for next week.

SILT FENCES: Good

CONSTRUCTION ENTRACE: Good

WATTLES AT ENTRACE: Good

BIO-BAG CHECK DAM: Good

IF STOCKPILES PRESENT ARE THEY TARPED (IF NOT BEING WORKED): No stockpiles.

DID ANY BMPS FAIL TO OPERATE CORRECTLY? NO

IF SO, IDENTIFY THE BMP AND ACTION NEEDED:

ARE BMPS NEEDED IN AREAS THEY WERE NOT ALREADY IMPLEMENTED? NO

IF SO, IDENTIFY THE BMP LOCATION AND ACTION NEEDED:

IF CORECTIVE ACTIONS ARE NEEDED, IDENTIFY THE DATE THEY WILL BE COMPLETED: N/A

DOCUMENT THE DATE CORRECTIONS WERE IMPLEMENTED:

STORMWATER 1200-C INSPECTION FORM

BRIDGEWATER GROUP, INC.

Client:	MMGL Corp	Job Number:	SIC-024
Project:	Doane Lake Source Control Actions	Date:	8/4/14
Site:	Doane Lake	Inspector:	A. Leritz
Weather:	Sunny, hot, dry	Time:	2:10 PM

OBSERVATIONS AT EACH DISCHARGE LOCATION (THERE ARE NO DIRECT DISCARGES TO SURFACE WATER, INSPECT TO VERIFY

DOANE LAKE POND TO GOULD: No discharge

AT GATE: TYPICALLY THE STORMWATER AT GATE SHOULD RUN-ON TO THE MMGL DOANE LAKE SITE. OBSERVE THIS TO ENSURE IT IS OCCURING AND STORMWATER IS NOT DISCHARGING. Good no discharge

WALK THE SITE TO ENSURE THERE ARE NO OTHER STORMWATER DISCHARGE LOCATIONS. Good no discharges.

OBSERVATIONS MUST INCLUDE COLOR OF THE WATER BEING DISCHARGED, IF TURBID OR CLEAR. Good no discharges
DESCRIBE ANY OIL SHEEN OR OTHER FLOATING SOLIDS

BMP OBSERVATIONS (NOTE CONDITION AS GOOD OR NOTE IMPROVEMENTS NEEDED)

Site not active. Hydro mulch of all exposed soils completed past week. Fence posts installed.

SILT FENCES: Good

CONSTRUCTION ENTRACE: Good

WATTLES AT ENTRACE: Good

BIO-BAG CHECK DAM: Good

IF STOCKPILES PRESENT ARE THEY TARPED (IF NOT BEING WORKED): No stockpiles.

DID ANY BMPS FAIL TO OPERATE CORRECTLY? NO

IF SO, IDENTIFY THE BMP AND ACTION NEEDED:

ARE BMPS NEEDED IN AREAS THEY WERE NOT ALREADY IMPLEMENTED? NO

IF SO, IDENTIFY THE BMP LOCATION AND ACTION NEEDED:

IF CORECTIVE ACTIONS ARE NEEDED, IDENTIFY THE DATE THEY WILL BE COMPLETED: N/A

DOCUMENT THE DATE CORRECTIONS WERE IMPLEMENTED:

STORMWATER 1200-C INSPECTION FORM

BRIDGEWATER GROUP, INC.

Client:	MMGL Corp	Job Number:	SIC-024
Project:	Doane Lake Source Control Actions	Date:	8/18/14
Site:	Doane Lake	Inspector:	J. Jakubiak
Weather:	Sunny, dry	Time:	10:00 AM

OBSERVATIONS AT EACH DISCHARGE LOCATION (THERE ARE NO DIRECT DISCARGES TO SURFACE WATER, INSPECT TO VERIFY

DOANE LAKE POND TO GOULD: No discharge. Pond almost dry.

AT GATE: TYPICALLY THE STORMWATER AT GATE SHOULD RUN-ON TO THE MMGL DOANE LAKE SITE. OBSERVE THIS TO ENSURE IT IS OCCURING AND STORMWATER IS NOT DISCHARGING. Dry, no stormwater.

WALK THE SITE TO ENSURE THERE ARE NO OTHER STORMWATER DISCHARGE LOCATIONS. Good no discharges.

OBSERVATIONS MUST INCLUDE COLOR OF THE WATER BEING DISCHARGED, IF TURBID OR CLEAR. No discharges
DESCRIBE ANY OIL SHEEN OR OTHER FLOATING SOLIDS

BMP OBSERVATIONS (NOTE CONDITION AS GOOD OR NOTE IMPROVEMENTS NEEDED)

SILT FENCES: Good

CONSTRUCTION ENTRACE: Good

WATTLES AT ENTRACE: N/A not final EC's.

BIO-BAG CHECK DAM: N/A not final EC's.

IF STOCKPILES PRESENT ARE THEY TARPED (IF NOT BEING WORKED): No stockpiles.

DID ANY BMPS FAIL TO OPERATE CORRECTLY? NO

IF SO, IDENTIFY THE BMP AND ACTION NEEDED:

ARE BMPS NEEDED IN AREAS THEY WERE NOT ALREADY IMPLEMENTED? NO

IF SO, IDENTIFY THE BMP LOCATION AND ACTION NEEDED:

IF CORECTIVE ACTIONS ARE NEEDED, IDENTIFY THE DATE THEY WILL BE COMPLETED: N/A

DOCUMENT THE DATE CORRECTIONS WERE IMPLEMENTED:

STORMWATER 1200-C INSPECTION FORM

BRIDGEWATER GROUP, INC.

Client:	MMGL	Job Number:	SIC-024
Project:	Doane Lake Source Control Actions	Date:	9/1/14
Site:	Doane Lake	Inspector:	A. Leritz
Weather:	Sunny, 75F	Time:	2:30 PM

OBSERVATIONS AT EACH DISCHARGE LOCATION (THERE ARE NO DIRECT DISCARGES TO SURFACE WATER, INSPECT TO VERIFY

DOANE LAKE POND TO GOULD: No discharge. Pond nearly dry

AT GATE: TYPICALLY THE STORMWATER AT GATE SHOULD RUN-ON TO THE MMGL DOANE LAKE SITE. OBSERVE THIS TO ENSURE IT IS OCCURING AND STORMWATER IS NOT DISCHARGING. No standing water, dry conditions

WALK THE SITE TO ENSURE THERE ARE NO OTHER STORMWATER DISCHARGE LOCATIONS. No discarge during inspection, no areas of apparent discharge.

OBSERVATIONS MUST INCLUDE COLOR OF THE WATER BEING DISCHARGED, IF TURBID OR CLEAR.
DESCRIBE ANY OIL SHEEN OR OTHER FLOATING SOLIDS : No Discharge

BMP OBSERVATIONS (NOTE CONDITION AS GOOD OR NOTE IMPROVEMENTS NEEDED)

SILT FENCES: Good, one small section on Air Liquide lease that was run over by a truck. Call Air Liquide on 9/2 to let them know to fix it.

CONSTRUCTION ENTRACE: Construction Entrance removed, project complete

WATTLES AT ENTRACE: Good

BIO-BAG CHECK DAM: Construction complete, not part of final EC's.

IF STOCKPILES PRESENT ARE THEY TARPED (IF NOT BEING WORKED): No stockpiles

DID ANY BMPS FAIL TO OPERATE CORRECTLY? No discharge. All BMPs appear OK

IF SO, IDENTIFY THE BMP AND ACTION NEEDED:

ARE BMPS NEEDED IN AREAS THEY WERE NOT ALREADY IMPLEMENTED? No additional BMPs needed.

IF SO, IDENTIFY THE BMP LOCATION AND ACTION NEEDED:

IF CORECTIVE ACTIONS ARE NEEDED, IDENTIFY THE DATE THEY WILL BE COMPLETED: Air Liquide notified they must repair the silt fence on their lease hold. Sediment would get contained on AL property gravel parking lot and would not likely discharge.

DOCUMENT THE DATE CORRECTIONS WERE IMPLEMENTED:

STORMWATER 1200-C INSPECTION FORM

BRIDGEWATER GROUP, INC.

Client:	MMGL Corp	Job Number:	SIC-024
Project:	Doane Lake Source Control Actions	Date:	9/15/14
Site:	Doane Lake	Inspector:	A. Leritz
Weather:	Sunny, dry.	Time:	8:45 AM

OBSERVATIONS AT EACH DISCHARGE LOCATION (THERE ARE NO DIRECT DISCARGES TO SURFACE WATER, INSPECT TO VERIFY

DOANE LAKE POND TO GOULD: No discharge. Pond dry, no standing water.

AT GATE: TYPICALLY THE STORMWATER AT GATE SHOULD RUN-ON TO THE MMGL DOANE LAKE SITE. OBSERVE THIS TO ENSURE IT IS OCCURING AND STORMWATER IS NOT DISCHARGING. No standing water, dry conditions.

WALK THE SITE TO ENSURE THERE ARE NO OTHER STORMWATER DISCHARGE LOCATIONS. No standing water, no areas of apparent discharge.

OBSERVATIONS MUST INCLUDE COLOR OF THE WATER BEING DISCHARGED, IF TURBID OR CLEAR. N/A
DESCRIBE ANY OIL SHEEN OR OTHER FLOATING SOLIDS

BMP OBSERVATIONS (NOTE CONDITION AS GOOD OR NOTE IMPROVEMENTS NEEDED)

SILT FENCES: Silt fencing is in good order, no build up

CONSTRUCTION ENTRACE: Construction complete, N/A

WATTLES AT ENTRACE: N/A

BIO-BAG CHECK DAM: Not part of final EC's.

IF STOCKPILES PRESENT ARE THEY TARPED (IF NOT BEING WORKED): No stockpiles.

DID ANY BMPS FAIL TO OPERATE CORRECTLY? NO

IF SO, IDENTIFY THE BMP AND ACTION NEEDED:

ARE BMPS NEEDED IN AREAS THEY WERE NOT ALREADY IMPLEMENTED? NO

IF SO, IDENTIFY THE BMP LOCATION AND ACTION NEEDED:

IF CORECTIVE ACTIONS ARE NEEDED, IDENTIFY THE DATE THEY WILL BE COMPLETED: N/A

DOCUMENT THE DATE CORRECTIONS WERE IMPLEMENTED:

STORMWATER 1200-C INSPECTION FORM

BRIDGEWATER GROUP, INC.

Client:	MMGL Corp	Job Number:	SIC-024
Project:	Doane Lake Source Control Actions	Date:	10/3/14
Site:	Doane Lake	Inspector:	A. Leritz
Weather:	Partly sunny, 65F.	Time:	3:45 PM

OBSERVATIONS AT EACH DISCHARGE LOCATION (THERE ARE NO DIRECT DISCARGES TO SURFACE WATER, INSPECT TO VERIFY

DOANE LAKE POND TO GOULD: No discharge. Pond damp, no standing water.

AT GATE: TYPICALLY THE STORMWATER AT GATE SHOULD RUN-ON TO THE MMGL DOANE LAKE SITE. OBSERVE THIS TO ENSURE IT IS OCCURING AND STORMWATER IS NOT DISCHARGING. No standing water, no discharge.

WALK THE SITE TO ENSURE THERE ARE NO OTHER STORMWATER DISCHARGE LOCATIONS. No discharges.

OBSERVATIONS MUST INCLUDE COLOR OF THE WATER BEING DISCHARGED, IF TURBID OR CLEAR. N/A
DESCRIBE ANY OIL SHEEN OR OTHER FLOATING SOLIDS

BMP OBSERVATIONS (NOTE CONDITION AS GOOD OR NOTE IMPROVEMENTS NEEDED)

SILT FENCES: Silt fencing is in good order.

CONSTRUCTION ENTRACE: Construction complete, N/A

WATTLES AT ENTRACE: N/A

BIO-BAG CHECK DAM: Not part of final EC's.

IF STOCKPILES PRESENT ARE THEY TARPED (IF NOT BEING WORKED): No stockpiles.

DID ANY BMPS FAIL TO OPERATE CORRECTLY? NO

IF SO, IDENTIFY THE BMP AND ACTION NEEDED:

ARE BMPS NEEDED IN AREAS THEY WERE NOT ALREADY IMPLEMENTED? NO

IF SO, IDENTIFY THE BMP LOCATION AND ACTION NEEDED:

IF CORECTIVE ACTIONS ARE NEEDED, IDENTIFY THE DATE THEY WILL BE COMPLETED: N/A

DOCUMENT THE DATE CORRECTIONS WERE IMPLEMENTED:

STORMWATER 1200-C INSPECTION FORM

BRIDGEWATER GROUP, INC.

Client:	MMGL Corp	Job Number:	SIC-024
Project:	Doane Lake Source Control Actions	Date:	10/17/14
Site:	Doane Lake	Inspector:	A. Leritz
Weather:	cloudy, 62F.	Time:	11:45 PM

OBSERVATIONS AT EACH DISCHARGE LOCATION (THERE ARE NO DIRECT DISCARGES TO SURFACE WATER, INSPECT TO VERIFY

DOANE LAKE POND TO GOULD: No discharge. Pond contained a pooled water but no discharge.

AT GATE: TYPICALLY THE STORMWATER AT GATE SHOULD RUN-ON TO THE MMGL DOANE LAKE SITE. OBSERVE THIS TO ENSURE IT IS OCCURING AND STORMWATER IS NOT DISCHARGING. No standing water, no discharge.

WALK THE SITE TO ENSURE THERE ARE NO OTHER STORMWATER DISCHARGE LOCATIONS. Very small amout of standing water in stormwater swales in NE and SE corners, some low spots. No areas of apparent discharge.

OBSERVATIONS MUST INCLUDE COLOR OF THE WATER BEING DISCHARGED, IF TURBID OR CLEAR. N/A
DESCRIBE ANY OIL SHEEN OR OTHER FLOATING SOLIDS

BMP OBSERVATIONS (NOTE CONDITION AS GOOD OR NOTE IMPROVEMENTS NEEDED)

SILT FENCES: Silt fencing is in good order.

CONSTRUCTION ENTRACE: Construction complete, N/A

WATTLES AT ENTRACE: N/A

BIO-BAG CHECK DAM: Not part of final EC's.

IF STOCKPILES PRESENT ARE THEY TARPED (IF NOT BEING WORKED): No stockpiles.

DID ANY BMPS FAIL TO OPERATE CORRECTLY? NO

IF SO, IDENTIFY THE BMP AND ACTION NEEDED:

ARE BMPS NEEDED IN AREAS THEY WERE NOT ALREADY IMPLEMENTED? NO

IF SO, IDENTIFY THE BMP LOCATION AND ACTION NEEDED:

IF CORECTIVE ACTIONS ARE NEEDED, IDENTIFY THE DATE THEY WILL BE COMPLETED: N/A

DOCUMENT THE DATE CORRECTIONS WERE IMPLEMENTED:

STORMWATER 1200-C INSPECTION FORM

BRIDGEWATER GROUP, INC.

Client:	MMGL Corp	Job Number:	SIC-024
Project:	Doane Lake Source Control Actions	Date:	10/31/14
Site:	Doane Lake	Inspector:	A. Leritz
Weather:	Rainy, 58F.	Time:	1:45 PM

OBSERVATIONS AT EACH DISCHARGE LOCATION (THERE ARE NO DIRECT DISCARGES TO SURFACE WATER, INSPECT TO VERIFY

DOANE LAKE POND TO GOULD: No discharge. Pond contained a couple feet of water but no discharge.

AT GATE: TYPICALLY THE STORMWATER AT GATE SHOULD RUN-ON TO THE MMGL DOANE LAKE SITE. OBSERVE THIS TO ENSURE IT IS OCCURING AND STORMWATER IS NOT DISCHARGING. No standing water, no discharge.

WALK THE SITE TO ENSURE THERE ARE NO OTHER STORMWATER DISCHARGE LOCATIONS. Standing water in stormwater swales in NE and SE corners, some low spots but draining to pond. No areas of apparent discharge.

OBSERVATIONS MUST INCLUDE COLOR OF THE WATER BEING DISCHARGED, IF TURBID OR CLEAR. N/A
DESCRIBE ANY OIL SHEEN OR OTHER FLOATING SOLIDS

BMP OBSERVATIONS (NOTE CONDITION AS GOOD OR NOTE IMPROVEMENTS NEEDED)

SILT FENCES: Silt fencing is in good order, slight build up on west side where discharges to pond. No way to clean out at this juncture. Does not result in offsite discharge.

CONSTRUCTION ENTRACE: Construction complete, N/A

WATTLES AT ENTRACE: N/A

BIO-BAG CHECK DAM: Not part of final EC's.

IF STOCKPILES PRESENT ARE THEY TARPED (IF NOT BEING WORKED): No stockpiles.

DID ANY BMPS FAIL TO OPERATE CORRECTLY? NO

IF SO, IDENTIFY THE BMP AND ACTION NEEDED:

ARE BMPS NEEDED IN AREAS THEY WERE NOT ALREADY IMPLEMENTED? NO

IF SO, IDENTIFY THE BMP LOCATION AND ACTION NEEDED:

IF CORECTIVE ACTIONS ARE NEEDED, IDENTIFY THE DATE THEY WILL BE COMPLETED: N/A

DOCUMENT THE DATE CORRECTIONS WERE IMPLEMENTED:

STORMWATER 1200-C INSPECTION FORM

BRIDGEWATER GROUP, INC.

Client:	MMGL Corp	Job Number:	SIC-024
Project:	Doane Lake Source Control Actions	Date:	11/14/14
Site:	Doane Lake	Inspector:	A. Leritz
Weather:	Sunny, cold 45 F	Time:	3:00 PM

OBSERVATIONS AT EACH DISCHARGE LOCATION (THERE ARE NO DIRECT DISCARGES TO SURFACE WATER, INSPECT TO VERIFY)

DOANE LAKE POND TO GOULD: No discharge. Pond nearly dry again, no discharge. Been 5 days of windy cold weather.

AT GATE: TYPICALLY THE STORMWATER AT GATE SHOULD RUN-ON TO THE MMGL DOANE LAKE SITE. OBSERVE THIS TO ENSURE IT IS OCCURING AND STORMWATER IS NOT DISCHARGING. No standing water, no discharge.

WALK THE SITE TO ENSURE THERE ARE NO OTHER STORMWATER DISCHARGE LOCATIONS. Stormwater swales, no areas of apparent discharge.

OBSERVATIONS MUST INCLUDE COLOR OF THE WATER BEING DISCHARGED, IF TURBID OR CLEAR. N/A
DESCRIBE ANY OIL SHEEN OR OTHER FLOATING SOLIDS

BMP OBSERVATIONS (NOTE CONDITION AS GOOD OR NOTE IMPROVEMENTS NEEDED)

SILT FENCES: Silt fencing is in good order, slight build up on west side where discharges to pond. No way to clean out at this juncture. Does not result in offsite discharge.

CONSTRUCTION ENTRACE: Construction complete, N/A

WATTLES AT ENTRACE: N/A

BIO-BAG CHECK DAM: Not part of final EC's.

IF STOCKPILES PRESENT ARE THEY TARPED (IF NOT BEING WORKED): No stockpiles.

DID ANY BMPS FAIL TO OPERATE CORRECTLY? NO

IF SO, IDENTIFY THE BMP AND ACTION NEEDED:

ARE BMPS NEEDED IN AREAS THEY WERE NOT ALREADY IMPLEMENTED? Rills starting in southern stormwater swale.

IF SO, IDENTIFY THE BMP LOCATION AND ACTION NEEDED:

IF CORECTIVE ACTIONS ARE NEEDED, IDENTIFY THE DATE THEY WILL BE COMPLETED: Meeting on 11/18/14 with contractor to decision on corrective actions.

DOCUMENT THE DATE CORRECTIONS WERE IMPLEMENTED: 12/2/14, corrective actions completed. New biobags and sandbags placed along with wattles in southern swale.

STORMWATER 1200-C INSPECTION FORM

BRIDGEWATER GROUP, INC.

Client:	MMGL Corp	Job Number:	SIC-024
Project:	Doane Lake Source Control Actions	Date:	11/18/14
Site:	Doane Lake	Inspector:	A. Leritz
Weather:	Sunny, cold 40 F	Time:	3:00 PM

OBSERVATIONS AT EACH DISCHARGE LOCATION (THERE ARE NO DIRECT DISCARGES TO SURFACE WATER, INSPECT TO VERIFY)

DOANE LAKE POND TO GOULD: No discharge. Pond nearly dry again, no discharge. Been 10 days of windy cold weather.

AT GATE: TYPICALLY THE STORMWATER AT GATE SHOULD RUN-ON TO THE MMGL DOANE LAKE SITE. OBSERVE THIS TO ENSURE IT IS OCCURING AND STORMWATER IS NOT DISCHARGING. No standing water, no discharge.

WALK THE SITE TO ENSURE THERE ARE NO OTHER STORMWATER DISCHARGE LOCATIONS. Stormwater swales, no areas of apparent discharge.

OBSERVATIONS MUST INCLUDE COLOR OF THE WATER BEING DISCHARGED, IF TURBID OR CLEAR. N/A
DESCRIBE ANY OIL SHEEN OR OTHER FLOATING SOLIDS

BMP OBSERVATIONS (NOTE CONDITION AS GOOD OR NOTE IMPROVEMENTS NEEDED)

SILT FENCES: Silt fencing is in good order, slight build up on west side where discharges to pond. No way to clean out at this juncture. Does not result in offsite discharge.

CONSTRUCTION ENTRACE: Construction complete, N/A

WATTLES AT ENTRACE: N/A

BIO-BAG CHECK DAM: Not part of final EC's.

IF STOCKPILES PRESENT ARE THEY TARPED (IF NOT BEING WORKED): No stockpiles.

DID ANY BMPS FAIL TO OPERATE CORRECTLY? NO

IF SO, IDENTIFY THE BMP AND ACTION NEEDED:

ARE BMPS NEEDED IN AREAS THEY WERE NOT ALREADY IMPLEMENTED? Rills starting in southern stormwater swale.

IF SO, IDENTIFY THE BMP LOCATION AND ACTION NEEDED:

IF CORECTIVE ACTIONS ARE NEEDED, IDENTIFY THE DATE THEY WILL BE COMPLETED: Met today with contractor to decide on corrective actions. See completed actions below.

DOCUMENT THE DATE CORRECTIONS WERE IMPLEMENTED: 12/2/14, corrective actions completed. New biobags and sandbags placed along with wattles in southern swale.

STORMWATER 1200-C INSPECTION FORM

BRIDGEWATER GROUP, INC.

Client:	MMGL Corp	Job Number:	SIC-024
Project:	Doane Lake Source Control Actions	Date:	12/1/14
Site:	Doane Lake	Inspector:	A. Leritz
Weather:	Cloudy, cold 30 F	Time:	8:00 AM

OBSERVATIONS AT EACH DISCHARGE LOCATION (THERE ARE NO DIRECT DISCARGES TO SURFACE WATER, INSPECT TO VERIFY)

DOANE LAKE POND TO GOULD: No discharge. Pond nearly dry again, no discharge. Many days of cold weather and only light rain since last cold snap.

AT GATE: TYPICALLY THE STORMWATER AT GATE SHOULD RUN-ON TO THE MMGL DOANE LAKE SITE. OBSERVE THIS TO ENSURE IT IS OCCURING AND STORMWATER IS NOT DISCHARGING. No standing water, no discharge.

WALK THE SITE TO ENSURE THERE ARE NO OTHER STORMWATER DISCHARGE LOCATIONS. Stormwater swales, no areas of apparent discharge.

OBSERVATIONS MUST INCLUDE COLOR OF THE WATER BEING DISCHARGED, IF TURBID OR CLEAR. N/A
DESCRIBE ANY OIL SHEEN OR OTHER FLOATING SOLIDS

BMP OBSERVATIONS (NOTE CONDITION AS GOOD OR NOTE IMPROVEMENTS NEEDED)

SILT FENCES: Silt fencing is in good order, slight build up on west side where discharges to pond. No way to clean out at this juncture. Does not result in offsite discharge.

CONSTRUCTION ENTRACE: Construction complete, N/A

WATTLES AT ENTRACE: N/A

BIO-BAG CHECK DAM: Not part of final EC's.

IF STOCKPILES PRESENT ARE THEY TARPED (IF NOT BEING WORKED): No stockpiles.

DID ANY BMPS FAIL TO OPERATE CORRECTLY? NO

IF SO, IDENTIFY THE BMP AND ACTION NEEDED:

ARE BMPS NEEDED IN AREAS THEY WERE NOT ALREADY IMPLEMENTED? Rills repaired today. Wattles and biobags added.

IF SO, IDENTIFY THE BMP LOCATION AND ACTION NEEDED:

IF CORECTIVE ACTIONS ARE NEEDED, IDENTIFY THE DATE THEY WILL BE COMPLETED: At site today to initiate corrective actions. Also performed insepction.

DOCUMENT THE DATE CORRECTIONS WERE IMPLEMENTED: 12/2/14, corrective actions completed. New biobags and sandbags placed along with wattles in southern swale.

STORMWATER 1200-C INSPECTION FORM

BRIDGEWATER GROUP, INC.

Client:	MMGL Corp	Job Number:	SIC-024
Project:	Doane Lake Source Control Actions	Date:	1/2/15
Site:	Doane Lake	Inspector:	A. Leritz
Weather:	Clear, cold 28 F	Time:	8:00 AM

OBSERVATIONS AT EACH DISCHARGE LOCATION (THERE ARE NO DIRECT DISCARGES TO SURFACE WATER, INSPECT TO VERIFY)

DOANE LAKE POND TO GOULD: No discharge. Pond couple of inches of water, no discharge. Six days of cold weather and no rain.

AT GATE: TYPICALLY THE STORMWATER AT GATE SHOULD RUN-ON TO THE MMGL DOANE LAKE SITE. OBSERVE THIS TO ENSURE IT IS OCCURING AND STORMWATER IS NOT DISCHARGING. No standing water, no discharge.

WALK THE SITE TO ENSURE THERE ARE NO OTHER STORMWATER DISCHARGE LOCATIONS. No areas of apparent discharge.

OBSERVATIONS MUST INCLUDE COLOR OF THE WATER BEING DISCHARGED, IF TURBID OR CLEAR. N/A
DESCRIBE ANY OIL SHEEN OR OTHER FLOATING SOLIDS

BMP OBSERVATIONS (NOTE CONDITION AS GOOD OR NOTE IMPROVEMENTS NEEDED)

SILT FENCES: Silt fencing is in good order, slight build up on west side where discharges to pond. No need to clean out at this juncture. Does not result in offsite discharge.

CONSTRUCTION ENTRACE: Construction complete, N/A

WATTLES AT ENTRACE: N/A

BIO-BAG CHECK DAM: Not part of final EC's.

IF STOCKPILES PRESENT ARE THEY TARPED (IF NOT BEING WORKED): No stockpiles.

DID ANY BMPS FAIL TO OPERATE CORRECTLY? NO

IF SO, IDENTIFY THE BMP AND ACTION NEEDED:

ARE BMPS NEEDED IN AREAS THEY WERE NOT ALREADY IMPLEMENTED? Rills repairs appear adequat for time being. Wattles and biobags appear in good order..

IF SO, IDENTIFY THE BMP LOCATION AND ACTION NEEDED:

IF CORECTIVE ACTIONS ARE NEEDED, IDENTIFY THE DATE THEY WILL BE COMPLETED: None.

DOCUMENT THE DATE CORRECTIONS WERE IMPLEMENTED: None

STORMWATER 1200-C INSPECTION FORM

BRIDGEWATER GROUP, INC.

Client:	MMGL Corp	Job Number:	SIC-024
Project:	Doane Lake Source Control Actions	Date:	1/2/15
Site:	Doane Lake	Inspector:	A. Leritz
Weather:	Raining, mild 52 F	Time:	3:00 PM

OBSERVATIONS AT EACH DISCHARGE LOCATION (THERE ARE NO DIRECT DISCARGES TO SURFACE WATER, INSPECT TO VERIFY)

DOANE LAKE POND TO GOULD: No discharge. Pond nearly full to discharge of bioswales.

AT GATE: TYPICALLY THE STORMWATER AT GATE SHOULD RUN-ON TO THE MMGL DOANE LAKE SITE. OBSERVE THIS TO ENSURE IT IS OCCURING AND STORMWATER IS NOT DISCHARGING. No standing water at gate, no discharge.

WALK THE SITE TO ENSURE THERE ARE NO OTHER STORMWATER DISCHARGE LOCATIONS. No areas of apparent discharge.

OBSERVATIONS MUST INCLUDE COLOR OF THE WATER BEING DISCHARGED, IF TURBID OR CLEAR. N/A
DESCRIBE ANY OIL SHEEN OR OTHER FLOATING SOLIDS

BMP OBSERVATIONS (NOTE CONDITION AS GOOD OR NOTE IMPROVEMENTS NEEDED)

SILT FENCES: Silt fencing is in good order, slight build up on west side where discharges to pond. No need to clean out at this juncture. Does not result in offsite discharge.

CONSTRUCTION ENTRACE: Construction complete, N/A

WATTLES AT ENTRACE: N/A

BIO-BAG CHECK DAM: Not part of final EC's.

IF STOCKPILES PRESENT ARE THEY TARPED (IF NOT BEING WORKED): No stockpiles.

DID ANY BMPS FAIL TO OPERATE CORRECTLY? NO

IF SO, IDENTIFY THE BMP AND ACTION NEEDED:

ARE BMPS NEEDED IN AREAS THEY WERE NOT ALREADY IMPLEMENTED? Rills repairs holding well. Channelization has been halted for the time being. Flow is significantly reduced. Wattles and biobags appear in good order.

IF SO, IDENTIFY THE BMP LOCATION AND ACTION NEEDED:

IF CORECTIVE ACTIONS ARE NEEDED, IDENTIFY THE DATE THEY WILL BE COMPLETED: None.

DOCUMENT THE DATE CORRECTIONS WERE IMPLEMENTED: None

STORMWATER 1200-C INSPECTION FORM

BRIDGEWATER GROUP, INC.

Client:	MMGL Corp	Job Number:	SIC-024
Project:	Doane Lake Source Control Actions	Date:	1/26/2015
Site:	Doane Lake	Inspector:	Mathew Cusma
Weather:	Fog, 46 degF	Time:	10:30 AM

OBSERVATIONS AT EACH DISCHARGE LOCATION (THERE ARE NO DIRECT DISCHARGES TO SURFACE WATER. INSPECT TO VERIFY.)

DOANE LAKE POND TO GOULD: High water in Doane Lake Pond. No discharge.

AT GATE: TYPICALLY THE STORMWATER AT GATE SHOULD RUN-ON TO THE MMGL DOANE LAKE SITE. OBSERVE THIS TO ENSURE IT IS OCCURING AND STORMWATER IS NOT DISCHARGING. No standing water, no discharge.

WALK THE SITE TO ENSURE THERE ARE NO OTHER STORMWATER DISCHARGE LOCATIONS. No areas of apparent discharge.

OBSERVATIONS MUST INCLUDE COLOR OF THE WATER BEING DISCHARGED, IF TURBID OR CLEAR. N/A
DESCRIBE ANY OIL SHEEN OR OTHER FLOATING SOLIDS

BMP OBSERVATIONS (NOTE CONDITION AS GOOD OR NOTE IMPROVEMENTS NEEDED)

SILT FENCES: Silt fencing is in good shape. Silt fencing along edge of pond is partially submerged and may need minor repairs or repositioning after water recedes.

CONSTRUCTION ENTRACE: Construction complete, N/A

WATTLES AT ENTRACE: N/A

BIO-BAG CHECK DAM: Not part of final EC's.

IF STOCKPILES PRESENT ARE THEY TARPED (IF NOT BEING WORKED): No stockpiles.

DID ANY BMPS FAIL TO OPERATE CORRECTLY? NO

IF SO, IDENTIFY THE BMP AND ACTION NEEDED: N/A

ARE BMPS NEEDED IN AREAS THEY WERE NOT ALREADY IMPLEMENTED? Rills repairs appear adequate for time being. Wattles and biobags appear in good order.

IF SO, IDENTIFY THE BMP LOCATION AND ACTION NEEDED: N/A

IF CORRECTIVE ACTIONS ARE NEEDED, IDENTIFY THE DATE THEY WILL BE COMPLETED: None needed.

DOCUMENT THE DATE CORRECTIONS WERE IMPLEMENTED: N/A

STORMWATER 1200-C INSPECTION FORM

BRIDGEWATER GROUP, INC.

Client:	MMGL Corp	Job Number:	SIC-024
Project:	Doane Lake Source Control Actions	Date:	2/11/15
Site:	Doane Lake	Inspector:	A. Leritz
Weather:	Raining, mild 52 F	Time:	9:30 AM

OBSERVATIONS AT EACH DISCHARGE LOCATION (THERE ARE NO DIRECT DISCARGES TO SURFACE WATER, INSPECT TO VERIFY)

DOANE LAKE POND TO GOULD: No discharge. Pond full and backing up into bioswales.

AT GATE: TYPICALLY THE STORMWATER AT GATE SHOULD RUN-ON TO THE MMGL DOANE LAKE SITE. OBSERVE THIS TO ENSURE IT IS OCCURRING AND STORMWATER IS NOT DISCHARGING. Standing water at gate, no discharge.

WALK THE SITE TO ENSURE THERE ARE NO OTHER STORMWATER DISCHARGE LOCATIONS. No areas of apparent discharge.

OBSERVATIONS MUST INCLUDE COLOR OF THE WATER BEING DISCHARGED, IF TURBID OR CLEAR. N/A
DESCRIBE ANY OIL SHEEN OR OTHER FLOATING SOLIDS

BMP OBSERVATIONS (NOTE CONDITION AS GOOD OR NOTE IMPROVEMENTS NEEDED)

SILT FENCES: Silt fencing on Air Liquide is getting damaged, however it is there responsibility and does not appear necessary any longer. Much of the silt fence along the Remnant Lake is half under water however it appears to be in good order. Still a build up on west side where discharges to pond. It is underwater and will be cleaned in the spring/summer. Does not result in offsite discharge.

CONSTRUCTION ENTRANCE: Construction complete, N/A

WATTLES AT ENTRANCE: N/A

BIO-BAG CHECK DAM: Not part of final EC's.

IF STOCKPILES PRESENT ARE THEY TARPED (IF NOT BEING WORKED): No stockpiles.

DID ANY BMPS FAIL TO OPERATE CORRECTLY? NO

IF SO, IDENTIFY THE BMP AND ACTION NEEDED:

ARE BMPS NEEDED IN AREAS THEY WERE NOT ALREADY IMPLEMENTED? Rills repairs still need some work. Channelization has been slowed for the time being and flow is significantly reduced.. Additional stakes and rock damns were added during inspection. Wattles and biobags appear in good order.

IF SO, IDENTIFY THE BMP LOCATION AND ACTION NEEDED:

IF CORRECTIVE ACTIONS ARE NEEDED, IDENTIFY THE DATE THEY WILL BE COMPLETED: None.

DOCUMENT THE DATE CORRECTIONS WERE IMPLEMENTED: None

STORMWATER 1200-C INSPECTION FORM

BRIDGEWATER GROUP, INC.

Client:	MMGL Corp	Job Number:	SIC-024
Project:	Doane Lake Source Control Actions	Date:	2/28/15
Site:	Doane Lake	Inspector:	A. Leritz
Weather:	Raining, mild 52 F	Time:	9:30 AM

OBSERVATIONS AT EACH DISCHARGE LOCATION (THERE ARE NO DIRECT DISCHARGES TO SURFACE WATER, INSPECT TO VERIFY)

DOANE LAKE POND TO GOULD: No discharge. Pond full receding slightly since last inspection. No standing water in swales.

AT GATE: TYPICALLY THE STORMWATER AT GATE SHOULD RUN-ON TO THE MMGL DOANE LAKE SITE. OBSERVE THIS TO ENSURE IT IS OCCURRING AND STORMWATER IS NOT DISCHARGING. No discharge.

WALK THE SITE TO ENSURE THERE ARE NO OTHER STORMWATER DISCHARGE LOCATIONS. No areas of apparent discharge.

OBSERVATIONS MUST INCLUDE COLOR OF THE WATER BEING DISCHARGED, IF TURBID OR CLEAR. N/A
DESCRIBE ANY OIL SHEEN OR OTHER FLOATING SOLIDS

BMP OBSERVATIONS (NOTE CONDITION AS GOOD OR NOTE IMPROVEMENTS NEEDED)

SILT FENCES: Silt fencing on Air Liquide is getting damaged, however it is there responsibility and does not appear necessary any longer. Much of the silt fence along the Remnant Lake is one third under water however it appears to be in good order. Still a build up on west side where discharges to pond. It is underwater and will be cleaned or removed in the spring/summer. Does not result in offsite discharge.

CONSTRUCTION ENTRANCE: Construction complete, N/A

WATTLES AT ENTRANCE: N/A

BIO-BAG CHECK DAM: Not part of final EC's.

IF STOCKPILES PRESENT ARE THEY TARPED (IF NOT BEING WORKED): No stockpiles.

DID ANY BMPS FAIL TO OPERATE CORRECTLY? NO

IF SO, IDENTIFY THE BMP AND ACTION NEEDED:

ARE BMPS NEEDED IN AREAS THEY WERE NOT ALREADY IMPLEMENTED? Rills same as last inspection. If needed they will be addressed in the spring.

IF SO, IDENTIFY THE BMP LOCATION AND ACTION NEEDED:

IF CORRECTIVE ACTIONS ARE NEEDED, IDENTIFY THE DATE THEY WILL BE COMPLETED: None.

DOCUMENT THE DATE CORRECTIONS WERE IMPLEMENTED: None

STORMWATER 1200-C INSPECTION FORM

BRIDGEWATER GROUP, INC.

Client:	MMGL Corp	Job Number:	SIC-024
Project:	Doane Lake Source Control Actions	Date:	3/13/15
Site:	Doane Lake	Inspector:	A. Leritz
Weather:	Cloudy, 54 F	Time:	8:30 AM

OBSERVATIONS AT EACH DISCHARGE LOCATION (THERE ARE NO DIRECT DISCHARGES TO SURFACE WATER, INSPECT TO VERIFY)

DOANE LAKE POND TO GOULD: No discharge. Pond receded. No substantial rain in 12 days.

AT GATE: TYPICALLY THE STORMWATER AT GATE SHOULD RUN-ON TO THE MMGL DOANE LAKE SITE. OBSERVE THIS TO ENSURE IT IS OCCURRING AND STORMWATER IS NOT DISCHARGING. No water at gate, no discharge.

WALK THE SITE TO ENSURE THERE ARE NO OTHER STORMWATER DISCHARGE LOCATIONS. No areas of apparent discharge.

OBSERVATIONS MUST INCLUDE COLOR OF THE WATER BEING DISCHARGED, IF TURBID OR CLEAR. N/A
DESCRIBE ANY OIL SHEEN OR OTHER FLOATING SOLIDS

BMP OBSERVATIONS (NOTE CONDITION AS GOOD OR NOTE IMPROVEMENTS NEEDED)

SILT FENCES: No new issues noted. Fence no longer under water, may plan for removal.

CONSTRUCTION ENTRANCE: Construction complete, N/A

WATTLES AT ENTRANCE: N/A

BIO-BAG CHECK DAM: Not part of final EC's.

IF STOCKPILES PRESENT ARE THEY TARPED (IF NOT BEING WORKED): No stockpiles.

DID ANY BMPS FAIL TO OPERATE CORRECTLY? NO

IF SO, IDENTIFY THE BMP AND ACTION NEEDED:

ARE BMPS NEEDED IN AREAS THEY WERE NOT ALREADY IMPLEMENTED? No changes since last inspection.

IF SO, IDENTIFY THE BMP LOCATION AND ACTION NEEDED:

IF CORRECTIVE ACTIONS ARE NEEDED, IDENTIFY THE DATE THEY WILL BE COMPLETED: None.

DOCUMENT THE DATE CORRECTIONS WERE IMPLEMENTED: None

STORMWATER 1200-C INSPECTION FORM

BRIDGEWATER GROUP, INC.

Client:	MMGL Corp	Job Number:	SIC-024
Project:	Doane Lake Source Control Actions	Date:	3/26/15
Site:	Doane Lake	Inspector:	A. Leritz
Weather:	Sunny, 65 F	Time:	3:00 PM

OBSERVATIONS AT EACH DISCHARGE LOCATION (THERE ARE NO DIRECT DISCHARGES TO SURFACE WATER, INSPECT TO VERIFY)

DOANE LAKE POND TO GOULD: No discharge. Pond receded since last insepction.

AT GATE: TYPICALLY THE STORMWATER AT GATE SHOULD RUN-ON TO THE MMGL DOANE LAKE SITE. OBSERVE THIS TO ENSURE IT IS OCCURRING AND STORMWATER IS NOT DISCHARGING. Small amount of water at gate, no discharge.

WALK THE SITE TO ENSURE THERE ARE NO OTHER STORMWATER DISCHARGE LOCATIONS. No areas of apparent discharge.

OBSERVATIONS MUST INCLUDE COLOR OF THE WATER BEING DISCHARGED, IF TURBID OR CLEAR. N/A
DESCRIBE ANY OIL SHEEN OR OTHER FLOATING SOLIDS

BMP OBSERVATIONS (NOTE CONDITION AS GOOD OR NOTE IMPROVEMENTS NEEDED)

SILT FENCES: No new issues noted. Fence no longer under water, may plan for removal.

CONSTRUCTION ENTRANCE: Construction complete, N/A

WATTLES AT ENTRANCE: N/A

BIO-BAG CHECK DAM: Not part of final EC's.

IF STOCKPILES PRESENT ARE THEY TARPED (IF NOT BEING WORKED): No stockpiles.

DID ANY BMPS FAIL TO OPERATE CORRECTLY? NO

IF SO, IDENTIFY THE BMP AND ACTION NEEDED:

ARE BMPS NEEDED IN AREAS THEY WERE NOT ALREADY IMPLEMENTED? No changes since last inspection.

IF SO, IDENTIFY THE BMP LOCATION AND ACTION NEEDED:

IF CORRECTIVE ACTIONS ARE NEEDED, IDENTIFY THE DATE THEY WILL BE COMPLETED: None.

DOCUMENT THE DATE CORRECTIONS WERE IMPLEMENTED: None

STORMWATER 1200-C INSPECTION FORM

BRIDGEWATER GROUP, INC.

Client:	MMGL Corp	Job Number:	SIC-024
Project:	Doane Lake Source Control Actions	Date:	4/2/15
Site:	Doane Lake	Inspector:	A. Leritz
Weather:	Sunny, 55 F	Time:	10:00 AM

OBSERVATIONS AT EACH DISCHARGE LOCATION (THERE ARE NO DIRECT DISCHARGES TO SURFACE WATER, INSPECT TO VERIFY)

DOANE LAKE POND TO GOULD: No discharge. Pond receded since last inspection.

AT GATE: TYPICALLY THE STORMWATER AT GATE SHOULD RUN-ON TO THE MMGL DOANE LAKE SITE. OBSERVE THIS TO ENSURE IT IS OCCURRING AND STORMWATER IS NOT DISCHARGING. No discharge.

WALK THE SITE TO ENSURE THERE ARE NO OTHER STORMWATER DISCHARGE LOCATIONS. No areas of apparent discharge.

OBSERVATIONS MUST INCLUDE COLOR OF THE WATER BEING DISCHARGED, IF TURBID OR CLEAR. N/A
DESCRIBE ANY OIL SHEEN OR OTHER FLOATING SOLIDS

BMP OBSERVATIONS (NOTE CONDITION AS GOOD OR NOTE IMPROVEMENTS NEEDED)

SILT FENCES: No new issues noted. Fence no longer under water, may plan for removal.

CONSTRUCTION ENTRANCE: Construction complete, N/A

WATTLES AT ENTRANCE: N/A

BIO-BAG CHECK DAM: Not part of final EC's.

IF STOCKPILES PRESENT ARE THEY TARPED (IF NOT BEING WORKED): No stockpiles.

DID ANY BMPS FAIL TO OPERATE CORRECTLY? NO

IF SO, IDENTIFY THE BMP AND ACTION NEEDED:

ARE BMPS NEEDED IN AREAS THEY WERE NOT ALREADY IMPLEMENTED? No changes since last inspection.

IF SO, IDENTIFY THE BMP LOCATION AND ACTION NEEDED:

IF CORRECTIVE ACTIONS ARE NEEDED, IDENTIFY THE DATE THEY WILL BE COMPLETED: None.

DOCUMENT THE DATE CORRECTIONS WERE IMPLEMENTED: None

STORMWATER 1200-C INSPECTION FORM

BRIDGEWATER GROUP, INC.

Client:	MMGL Corp	Job Number:	SIC-024
Project:	Doane Lake Source Control Actions	Date:	4/21/2015
Site:	Doane Lake	Inspector:	Brenda Anderson
Weather:	cloudy	Time:	10:30 AM

OBSERVATIONS AT EACH DISCHARGE LOCATION (THERE ARE NO DIRECT DISCHARGES TO SURFACE WATER. INSPECT TO VERIFY.)

DOANE LAKE POND TO GOULD:

AT GATE: TYPICALLY THE STORMWATER AT GATE SHOULD RUN-ON TO THE MMGL DOANE LAKE SITE. OBSERVE THIS TO ENSURE IT IS OCCURING AND STORMWATER IS NOT DISCHARGING.
No stormwater discharge or ponding water.

WALK THE SITE TO ENSURE THERE ARE NO OTHER STORMWATER DISCHARGE LOCATIONS.
No apparent discharge per site observations. Entire site was walked.

OBSERVATIONS MUST INCLUDE COLOR OF THE WATER BEING DISCHARGED, IF TURBID OR CLEAR.
DESCRIBE ANY OIL SHEEN OR OTHER FLOATING SOLIDS NA

BMP OBSERVATIONS (NOTE CONDITION AS GOOD OR NOTE IMPROVEMENTS NEEDED)

SILT FENCES: Standing. No issue noted.

CONSTRUCTION ENTRACE: NA - construction completed

WATTLES AT ENTRACE: NA

BIO-BAG CHECK DAM: NA - construction completed

IF STOCKPILES PRESENT ARE THEY TARPED (IF NOT BEING WORKED): No stockpiles.

DID ANY BMPS FAIL TO OPERATE CORRECTLY? No

IF SO, IDENTIFY THE BMP AND ACTION NEEDED: NA

ARE BMPS NEEDED IN AREAS THEY WERE NOT ALREADY IMPLEMENTED?
IF SO, IDENTIFY THE BMP LOCATION AND ACTION NEEDED: NA

IF CORRECTIVE ACTIONS ARE NEEDED, IDENTIFY THE DATE THEY WILL BE COMPLETED: Will fill eroded areas in the near future - researching fill provider options.

DOCUMENT THE DATE CORRECTIONS WERE IMPLEMENTED:

STORMWATER 1200-C INSPECTION FORM

BRIDGEWATER GROUP, INC.

Client:	MMGL Corp	Job Number:	SIC-024
Project:	Doane Lake Source Control Actions	Date:	5/4/2015
Site:	Doane Lake	Inspector:	Brenda Anderson
Weather:	sunny	Time:	12:30 PM

OBSERVATIONS AT EACH DISCHARGE LOCATION (THERE ARE NO DIRECT DISCHARGES TO SURFACE WATER. INSPECT TO VERIFY.)

DOANE LAKE POND TO GOULD:

AT GATE: TYPICALLY THE STORMWATER AT GATE SHOULD RUN-ON TO THE MMGL DOANE LAKE SITE. OBSERVE THIS TO ENSURE IT IS OCCURING AND STORMWATER IS NOT DISCHARGING.
No stormwater discharge or ponding water.

WALK THE SITE TO ENSURE THERE ARE NO OTHER STORMWATER DISCHARGE LOCATIONS.
No apparent discharge per site observations. Entire site was walked.

OBSERVATIONS MUST INCLUDE COLOR OF THE WATER BEING DISCHARGED, IF TURBID OR CLEAR.
DESCRIBE ANY OIL SHEEN OR OTHER FLOATING SOLIDS NA

BMP OBSERVATIONS (NOTE CONDITION AS GOOD OR NOTE IMPROVEMENTS NEEDED)

SILT FENCES: Standing. No issue noted.

CONSTRUCTION ENTRACE: NA - construction completed

WATTLES AT ENTRACE: NA

BIO-BAG CHECK DAM: NA - construction completed

IF STOCKPILES PRESENT ARE THEY TARPED (IF NOT BEING WORKED): No stockpiles.

DID ANY BMPS FAIL TO OPERATE CORRECTLY? No. Grass is growing in

IF SO, IDENTIFY THE BMP AND ACTION NEEDED: NA

ARE BMPS NEEDED IN AREAS THEY WERE NOT ALREADY IMPLEMENTED?
IF SO, IDENTIFY THE BMP LOCATION AND ACTION NEEDED: NA

IF CORRECTIVE ACTIONS ARE NEEDED, IDENTIFY THE DATE THEY WILL BE COMPLETED: Will fill eroded areas in the near future - researching fill provider options.

DOCUMENT THE DATE CORRECTIONS WERE IMPLEMENTED:

STORMWATER 1200-C INSPECTION FORM

BRIDGEWATER GROUP, INC.

Client:	MMGL Corp	Job Number:	SIC-024
Project:	Doane Lake Source Control Actions	Date:	5/19/2015
Site:	Doane Lake	Inspector:	Brenda Anderson
Weather:	Partly Cloudy	Time:	10:30 AM

OBSERVATIONS AT EACH DISCHARGE LOCATION (THERE ARE NO DIRECT DISCHARGES TO SURFACE WATER. INSPECT TO VERIFY.)

DOANE LAKE POND TO GOULD:

AT GATE: TYPICALLY THE STORMWATER AT GATE SHOULD RUN-ON TO THE MMGL DOANE LAKE SITE. OBSERVE THIS TO ENSURE IT IS OCCURING AND STORMWATER IS NOT DISCHARGING.
No stormwater discharge or ponding water.

WALK THE SITE TO ENSURE THERE ARE NO OTHER STORMWATER DISCHARGE LOCATIONS.
No apparent discharge per site observations. Entire site was walked.

OBSERVATIONS MUST INCLUDE COLOR OF THE WATER BEING DISCHARGED, IF TURBID OR CLEAR.
DESCRIBE ANY OIL SHEEN OR OTHER FLOATING SOLIDS NA

BMP OBSERVATIONS (NOTE CONDITION AS GOOD OR NOTE IMPROVEMENTS NEEDED)

SILT FENCES: Standing. No issue noted.

CONSTRUCTION ENTRACE: NA - construction completed

WATTLES AT ENTRACE: NA

BIO-BAG CHECK DAM: NA - construction completed

IF STOCKPILES PRESENT ARE THEY TARPED (IF NOT BEING WORKED): No stockpiles.

DID ANY BMPS FAIL TO OPERATE CORRECTLY? No.

IF SO, IDENTIFY THE BMP AND ACTION NEEDED: NA

ARE BMPS NEEDED IN AREAS THEY WERE NOT ALREADY IMPLEMENTED?
IF SO, IDENTIFY THE BMP LOCATION AND ACTION NEEDED: NA

IF CORRECTIVE ACTIONS ARE NEEDED, IDENTIFY THE DATE THEY WILL BE COMPLETED:_ Will fill eroded areas in the near future - researching fill provider options.

DOCUMENT THE DATE CORRECTIONS WERE IMPLEMENTED:

STORMWATER 1200-C INSPECTION FORM

BRIDGEWATER GROUP, INC.

Client:	MMGL Corp	Job Number:	SIC-024
Project:	Doane Lake Source Control Actions	Date:	6/30/2015
Site:	Doane Lake	Inspector:	Brenda Anderson
Weather:	Sunny	Time:	4:30 PM

OBSERVATIONS AT EACH DISCHARGE LOCATION (THERE ARE NO DIRECT DISCHARGES TO SURFACE WATER. INSPECT TO VERIFY.)

DOANE LAKE POND TO GOULD:

AT GATE: TYPICALLY THE STORMWATER AT GATE SHOULD RUN-ON TO THE MMGL DOANE LAKE SITE. OBSERVE THIS TO ENSURE IT IS OCCURING AND STORMWATER IS NOT DISCHARGING.
No stormwater discharge or ponding water observed. Site is very dry See Photo

WALK THE SITE TO ENSURE THERE ARE NO OTHER STORMWATER DISCHARGE LOCATIONS.
No apparent discharge per site observations. Entire site was walked.

OBSERVATIONS MUST INCLUDE COLOR OF THE WATER BEING DISCHARGED, IF TURBID OR CLEAR.
DESCRIBE ANY OIL SHEEN OR OTHER FLOATING SOLIDS No apparent discharge.

BMP OBSERVATIONS (NOTE CONDITION AS GOOD OR NOTE IMPROVEMENTS NEEDED)

SILT FENCES: Recently burned in fire. No construction ongoing however and no erosion issues. Grass has established

CONSTRUCTION ENTRACE: NA - construction completed

WATTLES AT ENTRACE: NA

BIO-BAG CHECK DAM: NA - construction completed

IF STOCKPILES PRESENT ARE THEY TARPED (IF NOT BEING WORKED): No stockpiles.

DID ANY BMPS FAIL TO OPERATE CORRECTLY? No.

IF SO, IDENTIFY THE BMP AND ACTION NEEDED: NA

ARE BMPS NEEDED IN AREAS THEY WERE NOT ALREADY IMPLEMENTED?
IF SO, IDENTIFY THE BMP LOCATION AND ACTION NEEDED: NA

IF CORRECTIVE ACTIONS ARE NEEDED, IDENTIFY THE DATE THEY WILL BE COMPLETED: Will fill eroded areas in the near future - researching fill provider options and applied for City construction permit.

DOCUMENT THE DATE CORRECTIONS WERE IMPLEMENTED: NA

Please note, the adjacent site to the northwest had caught on fire the weekend prior.
Very little impact was done to the property however some grass was durned along the fence line.

Pictures:

STORMWATER 1200-C INSPECTION FORM

STORMWATER 1200-C INSPECTION FORM

BRIDGEWATER GROUP, INC.

Client:	MMGL Corp	Job Number:	SIC-024
Project:	Doane Lake Source Control Actions	Date:	7/14/2015
Site:	Doane Lake	Inspector:	Brenda Anderson
Weather:	Sunny	Time:	10:00 AM

OBSERVATIONS AT EACH DISCHARGE LOCATION (THERE ARE NO DIRECT DISCHARGES TO SURFACE WATER. INSPECT TO VERIFY.)

DOANE LAKE POND TO GOULD:

AT GATE: TYPICALLY THE STORMWATER AT GATE SHOULD RUN-ON TO THE MMGL DOANE LAKE SITE. OBSERVE THIS TO ENSURE IT IS OCCURING AND STORMWATER IS NOT DISCHARGING.
No stormwater discharge or ponding water observed. Site is very dry.

WALK THE SITE TO ENSURE THERE ARE NO OTHER STORMWATER DISCHARGE LOCATIONS.
No apparent discharge per site observations. Entire site was walked.

OBSERVATIONS MUST INCLUDE COLOR OF THE WATER BEING DISCHARGED, IF TURBID OR CLEAR.
DESCRIBE ANY OIL SHEEN OR OTHER FLOATING SOLIDS No apparent discharge.

BMP OBSERVATIONS (NOTE CONDITION AS GOOD OR NOTE IMPROVEMENTS NEEDED)

SILT FENCES: N/A
CONSTRUCTION ENTRACE: NA - construction completed
WATTLES AT ENTRACE: NA
BIO-BAG CHECK DAM: NA - construction completed

IF STOCKPILES PRESENT ARE THEY TARPED (IF NOT BEING WORKED): No stockpiles.

DID ANY BMPS FAIL TO OPERATE CORRECTLY? No.

IF SO, IDENTIFY THE BMP AND ACTION NEEDED: NA

ARE BMPS NEEDED IN AREAS THEY WERE NOT ALREADY IMPLEMENTED?
IF SO, IDENTIFY THE BMP LOCATION AND ACTION NEEDED: NA

IF CORRECTIVE ACTIONS ARE NEEDED, IDENTIFY THE DATE THEY WILL BE COMPLETED: Will fill eroded areas in the near future - researching fill provider options and applied for City construction permit.

DOCUMENT THE DATE CORRECTIONS WERE IMPLEMENTED: NA

Tree's appear to need water - purchased tree watering drip bags

Pictures:

STORMWATER 1200-C INSPECTION FORM

BRIDGEWATER GROUP, INC.

Client:	MMGL Corp	Job Number:	SIC-024
Project:	Doane Lake Source Control Actions	Date:	7/28/2015
Site:	Doane Lake	Inspector:	Brenda Anderson
Weather:	Sunny	Time:	2:30 PM

OBSERVATIONS AT EACH DISCHARGE LOCATION (THERE ARE NO DIRECT DISCHARGES TO SURFACE WATER. INSPECT TO VERIFY.)

DOANE LAKE POND TO GOULD:

AT GATE: TYPICALLY THE STORMWATER AT GATE SHOULD RUN-ON TO THE MMGL DOANE LAKE SITE. OBSERVE THIS TO ENSURE IT IS OCCURING AND STORMWATER IS NOT DISCHARGING.
No stormwater discharge or ponding water observed. Site is very dry.

WALK THE SITE TO ENSURE THERE ARE NO OTHER STORMWATER DISCHARGE LOCATIONS.
No apparent discharge per site observations. Entire site was walked.

OBSERVATIONS MUST INCLUDE COLOR OF THE WATER BEING DISCHARGED, IF TURBID OR CLEAR.
DESCRIBE ANY OIL SHEEN OR OTHER FLOATING SOLIDS No apparent discharge.

BMP OBSERVATIONS (NOTE CONDITION AS GOOD OR NOTE IMPROVEMENTS NEEDED)

SILT FENCES: N/A
CONSTRUCTION ENTRACE: NA - construction completed
WATTLES AT ENTRACE: NA
BIO-BAG CHECK DAM: NA - construction completed

IF STOCKPILES PRESENT ARE THEY TARPED (IF NOT BEING WORKED): No stockpiles.

DID ANY BMPS FAIL TO OPERATE CORRECTLY? No.

IF SO, IDENTIFY THE BMP AND ACTION NEEDED: NA

ARE BMPS NEEDED IN AREAS THEY WERE NOT ALREADY IMPLEMENTED?
IF SO, IDENTIFY THE BMP LOCATION AND ACTION NEEDED: NA

IF CORRECTIVE ACTIONS ARE NEEDED, IDENTIFY THE DATE THEY WILL BE COMPLETED: Construction to fix eroded areas scheduled for mid-August.

DOCUMENT THE DATE CORRECTIONS WERE IMPLEMENTED: NA

Continue watering trees.

Pictures:

STORMWATER 1200-C INSPECTION FORM

BRIDGEWATER GROUP, INC.	Client:	MMGL Corp	Job Number:	SIC-024
	Project:	Doane Lake Source Control Actions	Date:	8/10/2015
	Site:	Doane Lake	Inspector:	Brenda Anderson
	Weather:	Sunny	Time:	9:00 AM

OBSERVATIONS AT EACH DISCHARGE LOCATION (THERE ARE NO DIRECT DISCHARGES TO SURFACE WATER. INSPECT TO VERIFY.)

DOANE LAKE POND TO GOULD:

AT GATE: TYPICALLY THE STORMWATER AT GATE SHOULD RUN-ON TO THE MMGL DOANE LAKE SITE. OBSERVE THIS TO ENSURE IT IS OCCURING AND STORMWATER IS NOT DISCHARGING.
No stormwater discharge or ponding water observed. Site is very dry.

WALK THE SITE TO ENSURE THERE ARE NO OTHER STORMWATER DISCHARGE LOCATIONS.
No apparent discharge per site observations. Entire site was walked.

OBSERVATIONS MUST INCLUDE COLOR OF THE WATER BEING DISCHARGED, IF TURBID OR CLEAR.
DESCRIBE ANY OIL SHEEN OR OTHER FLOATING SOLIDS No apparent discharge.

BMP OBSERVATIONS (NOTE CONDITION AS GOOD OR NOTE IMPROVEMENTS NEEDED)

SILT FENCES: Good
CONSTRUCTION ENTRACE: Good
WATTLES AT ENTRACE: GOod
BIO-BAG CHECK DAM: NA

IF STOCKPILES PRESENT ARE THEY TARPED (IF NOT BEING WORKED): No stockpiles.

DID ANY BMPS FAIL TO OPERATE CORRECTLY? No.

IF SO, IDENTIFY THE BMP AND ACTION NEEDED: NA

ARE BMPS NEEDED IN AREAS THEY WERE NOT ALREADY IMPLEMENTED?
IF SO, IDENTIFY THE BMP LOCATION AND ACTION NEEDED: No

IF CORRECTIVE ACTIONS ARE NEEDED, IDENTIFY THE DATE THEY WILL BE COMPLETED: Construction to fix eroded areas.

DOCUMENT THE DATE CORRECTIONS WERE IMPLEMENTED: 8/10/2015-8/11/2015

Construction taking place today and tomorrow for fixing eroded areas. See pictures below. No precipiation.
Pictures:

STORMWATER 1200-C INSPECTION FORM

BRIDGEWATER GROUP, INC.	Client:	MMGL Corp	Job Number:	SIC-024
	Project:	Doane Lake Source Control Actions	Date:	8/26/2015
	Site:	Doane Lake	Inspector:	Brenda Anderson
	Weather:	Sunny	Time:	1:30 PM

OBSERVATIONS AT EACH DISCHARGE LOCATION (THERE ARE NO DIRECT DISCHARGES TO SURFACE WATER. INSPECT TO VERIFY.)

DOANE LAKE POND TO GOULD:

AT GATE: TYPICALLY THE STORMWATER AT GATE SHOULD RUN-ON TO THE MMGL DOANE LAKE SITE. OBSERVE THIS TO ENSURE IT IS OCCURING AND STORMWATER IS NOT DISCHARGING.
No stormwater discharge or ponding water observed. Site is very dry.

WALK THE SITE TO ENSURE THERE ARE NO OTHER STORMWATER DISCHARGE LOCATIONS.
No apparent discharge per site observations. Entire site was walked.

OBSERVATIONS MUST INCLUDE COLOR OF THE WATER BEING DISCHARGED, IF TURBID OR CLEAR.
DESCRIBE ANY OIL SHEEN OR OTHER FLOATING SOLIDS No apparent discharge.

BMP OBSERVATIONS (NOTE CONDITION AS GOOD OR NOTE IMPROVEMENTS NEEDED)

SILT FENCES: Good
CONSTRUCTION ENTRACE: Good
WATTLES AT ENTRACE: GOod
BIO-BAG CHECK DAM: NA

IF STOCKPILES PRESENT ARE THEY TARPED (IF NOT BEING WORKED): No stockpiles.

DID ANY BMPS FAIL TO OPERATE CORRECTLY? No.

IF SO, IDENTIFY THE BMP AND ACTION NEEDED: NA

ARE BMPS NEEDED IN AREAS THEY WERE NOT ALREADY IMPLEMENTED?
IF SO, IDENTIFY THE BMP LOCATION AND ACTION NEEDED: No

IF CORRECTIVE ACTIONS ARE NEEDED, IDENTIFY THE DATE THEY WILL BE COMPLETED: Construction to fix eroded areas.

DOCUMENT THE DATE CORRECTIONS WERE IMPLEMENTED: 8/10/2015-8/11/2015

Grass seeding taking place today
Pictures:

STORMWATER 1200-C INSPECTION FORM

Attachment 7

May 9, 2013 Revised Source Control Decision Report (attachments not included)

Revised Source Control Decision Report

Schnitzer Investment Corp.

Doane Lake Property

6529 NW Front Avenue
Portland, Oregon

ECSI Site ID #395

May 9, 2013

CONTENTS

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ABBREVIATIONS AND ACRONYMS

SR	shredder residue
SIC	Schnitzer Investment Corp.
PCB	polychlorinated byphenyl
DEQ	Department of Environmental Quality
FSCE	Focused Source Control Evaluation
COI	Constituent of Interest
PAH	polycyclic aromatic hydrocarbon
bgs	below ground surface
USGS	U.S. Geological Survey
AMEC	AMEC Earth & Environmental
RP	Rhone-Poulenc
SLLI	StarLink Logistic, Inc.
EPA	Environmental Protection Agency
OF-22B	Outfall 22B
JSCS	Joint Source Control Strategy
SLV	Screening Level Value
mg/L	milligram per liter
mg/kg	milligram per kilogram
TCLP	Toxicity Characteristic Leaching Procedure
VOC	volatile organic compound
SVOC	semivolatile organic compound
BTEX	benzene, toluene, ethyl benzene, and xylene
MRL	method reporting limit
µg/L	microgram per liter
pg/L	pictogram per liter
MDL	method detection limit
PRG	Preliminary Remediation Goal
LWG	Lower Willamette Group
10Xs	10 times
MDL	method detection limit
E&ES	Easement and Equitable Servitude
SCMP	Soil and Cap Management Plan

SECTION 1

INTRODUCTION

On October 11, 2010, the Oregon Department of Environmental Quality (DEQ) entered into a Voluntary Letter Agreement (Agreement) with Schnitzer Investment Corp. (SIC) to evaluate whether the SIC Doane Lake Property (Property) located at 6529 NW Front Avenue, Portland, Oregon (Figure 1, ECSI site ID 395), is a source of hazardous substances associated with shredder residue or "shredder fluff"[1] that are present at concentrations that pose an unacceptable risk through transport of these materials to the Willamette River.

Under the agreement, SIC developed and submitted a Focused Source Control Evaluation Work Plan in December 2010. In accordance with the Work Plan and the Agreement, SIC performed a Focused Source Control Evaluation (FSCE) to evaluate the potential contaminant pathways to the Willamette River from the Property. The FSCE concluded that stormwater and groundwater were not complete pathways; however windblown dust could be a potential pathway that required further evaluation. As a result, SIC conducted a source control investigation at the Property.

The results of the source control investigation indicate that windblown dust does not appear to be a significant direct or indirect pathway at this time. However, surface soil sample results detected polychlorinated biphenyl's (PCBs), metals, and bis(2-ethyhexyl)phthalate greater than applicable screening level values (SLVs). Consequently, DEQ was concerned that future use/development of the currently undeveloped site could disturb the site and create a complete pathway via windblown dust/stormwater that would pose a contamination risk to the river. SIC evaluated potential source control alternatives to address these concerns.

The results of the FSCE, source control investigation, and alternatives analysis are summarized in this decision document. This source control decision document includes a consolidation of the information provided in SIC's September 13, 2011 FSCE Report (Bridgewater Group, Inc., 2011) and the April 4, 2012 Addendum to the FSCE Report (Bridgewater Group, Inc., 2012). SIC conducted the FSCE in accordance with the Portland Harbor Joint Source Control Strategy (JSCS) and DEQ's Guidance for Evaluating the Stormwater Pathway at Upland Sites (2010).

Based on the results of the FSCE summarized in this decision document, DEQ has selected, cap in place and institutional controls as the preferred source control measure.

[1] ''SHREDDER RESIDUE" and "shredder fluff" may be used interchangeably throughout this report.

SECTION 2

SITE DESCRIPTION AND HISTORY

2.1 Site Description

The location of the SIC Property ECSI site ID 395) is shown in Figure 1. The Property's principle characteristics and history are detailed below.

2.1.1 General Site Conditions and Operations

The Property subject to the source control action consists of about 3.5 acres and is the northern portion of Tax Lot 700, City of Portland, as indicated in Figure 2.

The Property is currently undeveloped and lies within a industrialized area. The Property is approximately 1,500 feet inland from the Willamette River. The western[2] portion of the Property is low-lying area excavated and backfilled during the NL/Gould remediation. Surface water is present seasonally and varies with climatic conditions. During the summer months the area is dry. Surface water may or may not be present during the winter months. The southeast portion of the Property is vegetated with grass, brush, and trees. The north/northeast portion is lightly vegetated with grass and sparse brush. Tax Lot 700 is entirely surrounded with a chain-link fence. The only entrances to the Property are from NW Front Avenue on the northeast portion of the Property or through Air Liquide's locked gate. Figure 3 illustrates the site layout.

During the early 1970s, and possibly the late 1960s, filling with Shredder residue occurred in the northeast portion of the Property. Shredder residue of that era consisted typically of non-reclaimable residues composed largely of plastic, rubber, glass, fabric, foam, and non-ferrous metals. According to former Schnitzer employee testimony, the shredder mill feed stock during the time period that Shredder Residue was deposited at the Doane Lake Site included crushed automobile bodies, light sheet metal, household appliances, sheet-tin roofing, fence, wire fence, and light material with a ferrous component. SIC required all non-ferrous debris to be stripped from the automobiles before accepting them including: seats, rugs, car mats, large wire harnesses, and anything else that could be removed because it interfered with the mill. Gasoline tanks, radiators, heater cores, batteries, and engines were also removed from the automobiles before SIC accepted them or shredded them. No contemporaneous records are available that document the placement of the fill. Investigations performed in the 1990s indicate that Shredder

[2] All references to direction are based on "project north" as shown in Figure 1 and 2, unless otherwise noted.

Residue is present below grade at the Property, ranging from 10 to 13 feet thick.

During the early 1960s, slag mixed with other fill dirt, was reportedly used to construct a dike along the western portion of the property along the SIC and Gould property boundary. The source of the slag was from a nearby foundry and the fill dirt was reportedly from local construction and road building projects and was generally free of debris. Fill dirt of the same nature reportedly was also placed before and during the SR filling elsewhere on the property.

As discussed in Section 5, *Source Control Investigation*, constituents of interest (COIs) potentially associated with the various fill materials include PCBs, phthalates, volatile organic compounds (VOCs) and certain metals.

The area around the Property includes several contaminated sites that are undergoing investigations under DEQ or EPA oversight. These sites include the Metro Central Transfer Station (ECSI site ID 1398) to the west; Air Liquide to the south, and Gould Inc. (ECSI site ID 49) and Rhone-Poulenc (ECSI site ID 155) to the north and west, respectively. The Property is bordered by Front Avenue to the east and Arkema (ECSI site ID 398) on the other side of Front Avenue. The Gould Superfund Site was previously operated as a lead smelter and lead reclamation facility, and remedial action for that site included remedial action in the East Doane Lake remnant on the subject Property. The COI primarily associated with the Gould operations is lead. Area-wide groundwater impacts are associated with the former Rhone-Poulenc operations, with a variety of COIs, as discussed in Section 4.3, *Groundwater*, of this report.

Extensive site characterization and remediation activities have occurred or continue to occur at the Gould, Rhone-Poulenc, and Arkema sites. Historical and recent reports document impacts to soil and groundwater in this region. In some cases, the impacts have extended to the Property as discussed in Section 3, *Regulatory History*, of this report.

The Property is undeveloped and has no operating processes or ongoing activities. There are no paved surfaces and no stormwater or sanitary conveyance systems or piping.

2.1.2 Site History Summary

In 1936, the Property was undeveloped and was part of an inland lake named Doane Lake. Prior to development, the original Doane Lake occupied an abandoned channel of the Willamette River. From approximately the 1940s to 1990, other portions of the larger Doane Lake that were located on adjacent properties were filled with soil, dredge spoils, wastes, and fill material from various industrial activities by various property owners including ESCO (wastes from ESCO's off-site foundry operations including foundry sand, dust, yard debris, slag, scale, and metals), NL/Gould (discarded battery casing materials and other lead smelter wastes), BNSF (dredge spoils and imported fill), and Rhone-Poulenc (imported fill and herbicide/insecticide manufacturing wastes).

As discussed below, filling occurred on the subject property, including in the lake, with non-magnetic shredder residue and calcium hydroxide waste.

By 1970, the middle portion of the lake was filled enough that it separated into what are now known as East Doane Lake and West Doane Lake. A portion of East Doane Lake on the Property was further filled by Gould as part of the final remedial action (Advanced Geoservices Corp., 2001). The remnant of the East Doane Lake still remains on the Property.

In 1947, Industrial Air Products Co., a partnership, purchased the entire undeveloped Tax Lot 700 property from Bethlehem Steel. In the early 1950's the partnership sold it to Industrial Air Products Co., a corporation, which developed the southern portion of Tax Lot 700 as an acetylene and other industrial gas manufacturing site while the northern portion remained undeveloped (Figure 2). Industrial Air Products Co. was acquired in 1969 by American Cryogenics, which was a predecessor to Air Liquide America. Although it appears the property was not deeded to SIC until 1971, SIC is the lessor in a lease of the property to Industrial Air Products Co. beginning 1962. In 1981, the leasehold was divided so that Air Liquide's predecessor only leased the southern portion of the tax lot, not including the Property. Air Liquide is still the tenant of SIC on the southern half of the property, where it continues to operate an acetylene and other industrial gas manufacturing plant.

From approximately 1950 to 1980, the neighboring acetylene manufacturing plant placed lime (calcium hydroxide) into East Doane Lake, which at that time occupied much of the Property. Lime is a by-product of the acetylene manufacturing process. For an unknown time period, some of the lime was dredged and sold to farmers; however, not all the lime was removed. As a result, a layer of lime remains in the southeast portion of the Property approximately 10 to 13 feet below ground surface (bgs). Aerial photographs indicate that this portion of East Doane Lake was abandoned and filled in the early 1980s and is now covered with topsoil and vegetation. The approximate horizontal extent of the lime layer is illustrated in Figure 4.

Reportedly during the early 1960s and perhaps as early as 1959, according to aerial photographs, fill dirt possibly mixed with ESCO slag was used to construct a dike in the northeast corner extending from Front Avenue to the west partially across the Property (Figure 4).

As discussed earlier, during the 1970s and possibly the late 1960s, filling with Shredder Residue occurred in the northeast portion of the Property. Apparently, the northeast portion of the Property was first filled with soil fill that was then topped with Shredder Residue. It is estimated that Shredder Residue ranges approximately 10 to 13 feet thick. Figure 4 illustrates the approximate placement of Shredder residue fill.

From December 27, 1995, to January 23, 1996, with DEQ approval, SIC removed and recycled approximately 1,826 cubic yards of Shredder Residue that was present aboveground. Subsurface materials were left in place.

The Property remains fenced and undeveloped.

2.1.3 Topography and Surface Hydrology

The Property is located on former marshland and alluvial floodplains of the Willamette River. The Linnton U.S. Geological Survey (USGS) 7½-minute topographic map indicates that the Property is slightly lower in elevation than surrounding properties.

During winter and spring months, water periodically collects in the area of the now-filled East Doane Lake remnant along the western edge of the Property. The water is believed to be associated with rainfall accumulation and the rise of groundwater in the area. Observations during periods of extended heavy rainfall in 2009, 2010, and 2011 suggest that this area is the low point of the Property, and that surface water is generally contained on the Property. In effect, the East Doane Lake remnant acts as a stormwater retention basin for the western portion and parts of the northern portion of the Property.

SIC performed a topographic survey in support of the FSCE in June 2011. Figure 5 illustrates the measured spot elevations and inferred elevation contours. The Shredder Residue fill area of the Property is relatively flat, with approximately 2 feet in elevation change. The highest elevations at the Property are the top of hillside on the Metro property line, the former lime deposition area, and the western portion of the Air Liquide/SIC lease line.

The lowest elevations on the Property are observed in the Doane Lake remnant, as evidenced by seasonal accumulation of stormwater.

2.1.4 Geology

According to the USGS, the surface geology of northeastern Portland is characterized by Tertiary and Quaternary sedimentary and volcanic deposits. The Property lies within a northwest-southwest trending structural depression that contains approximately 1,800 feet of late Tertiary and Quaternary sediment deposits of fluvial (river) and lacustrine (lake) origin.

The Property is also located on the southern edge of the Doane Lake area and is underlain by unconsolidated sand, silt, and gravel over Tertiary age bedrock of the Columbia River Basalt Group. The unconsolidated sediments include three distinct units: Recent Fill, Quaternary Age Alluvium, and Tertiary Age Troutdale Formation (CH2M HILL, 2009).

The Recent Fill reportedly consists of river dredge material, rock quarry spoils, and other materials used to fill in former Doane Lake starting in the mid-1940s and continuing through the 1990s. The fill ranges in thickness from 4 to 35 feet (Fugro West, 1997).

2.1.5 Hydrology

Extensive area-wide groundwater investigations have been conducted by the Starlink Logistic, Inc.'s (SLLI) consultant, AMEC Earth & Environmental (AMEC), at the Rhone-Poulenc (RP) site. The groundwater investigations indicate that three hydrogeologic units are present in the vicinity of the Property: a Fill/Shallow Zone, an Alluvium Zone, and a Basalt Zone (AMEC, 2008).

Fill/Shallow Zone

The fill component of the Alluvium extends to depths of approximately 10 to 14 feet bgs, across the Property. Materials comprising the fill include shredder residue, soil fill, lime from the adjacent acetylene plant, and quarried basalt which was used to fill in the East Doane Lake.

Groundwater elevations at monitoring well clusters screened in the fill lithologic unit (W-16-S) and the underlying Alluvium Zone (W-16-I) generally indicate a downward vertical gradient between the fill lithologic unit and the Alluvium Zone at the Property . The Fill/Shallow Zone is saturated at the Property, as indicated by data from an on-site monitoring well (W-16-S) installed by AMEC on behalf of SLLI.

Alluvium Zone

The alluvial material underlying the fill comprises of sediments deposited by the River. The Alluvium is broadly characterized as silty sand and sandy silt extending to depths of approximately 70 feet bgs on the Property. An upper layer of clay and silty clay is sometimes distinguishable beneath former Doane Lake, extending to a depth of approximately 17 feet bgs (10 feet amsl).Basalt Zone

Basalt Zone

The Basalt Zone includes the basalt lithologic unit and underlies the alluvial deposits. According to AMEC (2005), the basalt in the vicinity of the Property site is of the Columbia River Group. The Columbia River Basalt in this area is at least 700 feet thick and consists of a series of lava flows with discontinuous layers of interflow tuff (USGS, 1963).

Groundwater Flow

The general groundwater flow at the Property is demonstrated by the alluvium groundwater elevations. Groundwater in this zone flows from magnetic south to north[3], generally toward the river (AMEC, 2005). Flow within the silty sand/sandy silt is moderate. Based on data collected as part of the Rhone Poulenc investigation, the estimated hydraulic conductivity ranges from 0.01 to 10.70 feet/day (geometric mean of 1.3 feet/day) (AMEC 2009). Based on the groundwater contour figures the typical hydraulic gradient across the site is approximately 0.01 ft/ft.

[3] All other references to north, east, south, or west in this document are based on a "Project North" designated.

Groundwater contour figures generated by AMEC in 2007 and 2009 are included in Appendix A. Copies of AMEC's geological cross section figures from 2010 are provided in Appendix B, respectively.

2.2 Existing Source Controls and Best Management Practices

Under the U.S. Environmental Protection Agency (EPA) 1998 Environmental Protection Easement and Declaration of Restrictive Covenants imposed as part of the EPA-led remedial action on the adjacent Gould site, agricultural and residential development on the Property is prohibited. The Property is also subject to further restrictions to prevent damage to or disturbance of the Gould remedial actions. As discussed in Section 3, *Regulatory History*, in conjunction with the Rhone-Poulenc area-wide groundwater remedial action, the Property is also subject to a prohibition of the use of groundwater for any purpose except for construction purposes or sampling for groundwater quality.

SIC has also taken steps to secure the property and to prevent erosion of site soils. The entire Tax Lot 700 property is fenced with locked gates that remain locked 24 hours per day. The Property is naturally vegetated (Figure 3), and SIC has installed a silt fence, and seeded the majority of surface soils on the Property where natural vegetation was not present.

Rhone Poulenc also implemented a source control measure for the City of Portland Outfall (OF) 22B collection and conveyance system to prevent impacted groundwater from infiltrating the conveyance system and discharging to the Willamette River through OF-22B. Rhone Poulenc lined the entire OF-22B collection and conveyance system, including the pipeline section adjacent to and down-gradient from the Property. This source control measure prevents potentially impacted groundwater from infiltrating the OF-22B conveyance system, which could act a preferential pathway to the river. The effectiveness of the OF-22B lining will be monitored by Rhone Poulenc as part of the Rhone Poulenc remedial work.

SECTION 3

Regulatory History

The Property is undeveloped and has no operating processes or ongoing activities. There are no records of environmental permits issued for operations at the Property, aboveground or underground storage tanks, hazardous waste generation, violations, pollution complaints, or spills. In 1995, DEQ approved the removal of approximately 1,800 cubic yards of above grade Shredder Residue piles from the Property, for off-site recycling for the recovery of non-ferrous metals.

The Property has known groundwater impacts from former Rhone-Poulenc activities. Rhone-Poulenc is performing an area-wide assessment of groundwater impacts of its former operations, pursuant to a 1999 Consent Order with DEQ for ECSI site ID 155. Rhone-Poulenc groundwater COIs are identified in the RI/SCE Report (AMEC, 2010). Pursuant to a covenant with Rhone-Poulenc, SIC has agreed that no use shall be made of groundwater at the Property for any purposes, by extraction through wells or by any other means. The prohibition does not apply to extraction of groundwater for construction purposes, sampling for groundwater quality, or installation of DEQ- or EPA-approved monitoring wells.

The SIC Property has been impacted by the operations from the Gould Superfund site, at which remediation has been completed to address lead contamination resulting from prior use of that property for a lead reclamation and smelting operation. As described in the May 1997 Amended Record of Decision, that site included the portions of the Property that were necessary for implementation of the Gould remedy. Specifically, as part of the remedial action for that site, sediment in a portion of the East Doane Lake remnant was removed and the remnant lake was backfilled with quarry rock. SIC entered into an Environmental Protection Easement and Declaration of Restrictive Covenants in 1998 that places restrictions on the development of the Property to protect the Gould remedial action, specifically to provide sublateral support to the landfill on the adjacent Gould property.

On October 11, 2010, SIC entered into a Letter Agreement to perform a Focused Source Control Assessment.

SECTION 4

HAZARDOUS SUBSTANCE RELEASES AND HISTORICAL INVESTIGATIONS

4.1 Description of Known Releases

SIC has no record of releases (i.e., spills) of hazardous substances at the Property. As noted in preceding sections, Shredder Residue has been placed on the property, ESCO slag material and dirt from City road construction may have been placed on the Property, and impacts occurred from the Gould lead smelting and reclamation activities. A discussion of the COIs associated with these materials is included in Section 5.1, *Discussion of Potential COIs Associated with Property Activities*.

4.2 Previous Site Characterization Data Sources

There are three primary sources of historical site characterization data:

- Two investigations of the Shredder Residue at the Property were performed in 1990 and 1995.
- SLLI performed several groundwater monitoring events at the Property and surrounding property monitoring wells, including the down-gradient Arkema wells.
- Arkema performed groundwater monitoring of the same and other down-gradient wells.

Sampling and analysis results from these investigations have been tabulated and evaluated. The measured chemical concentrations are compared, where appropriate, to the DEQ Portland Harbor Joint Source Control Strategy (JSCS) Screening Level Values (SLVs) in Section 5, *Source Control Evaluation*. This section discusses the scope of the previous investigations.

4.3 Soil

4.3.1 1990 Shredder Residue Investigation

SIC conducted an assessment of above-grade Shredder Residue in 1990 prior to removing it from the site. Laboratory analysis of the samples showed the presence of EP Tox lead using the extraction procedure for toxicity (EPA Method 1310), ranging from 6.3 milligrams per liter (mg/L) to 73 mg/L. EP Tox cadmium was detected and ranged from 0.2 mg/L to 2.0 mg/L, as shown in Table 1. EP Tox barium was detected and ranged

from 8 mg/L to 14 mg/L. Total PCBs Aroclors were detected ranging in concentration from 27 mg/kg to 110 mg/kg as listed in Table 2.

4.3.2 1995 Shredder Residue Investigation

SIC conducted a second investigation in 1995 to characterize the nature and extent of remaining Shredder Residue at the Property. Shredder Residue was observed from the ground surface to approximately 13 feet bgs, averaging approximately 10 feet thick. Topsoil visibly free of Shredder Residue was noted at various locations ranging from zero to 3 feet thick. The estimated horizontal extent of Shredder Residue fill is illustrated in Figure 4.

Analysis for total metals was not conducted; soils were analyzed for metals using the Toxicity Characteristic Leaching Procedure (TCLP), EPA Method 1311. The detected leachable metals are summarized in Table 1. Table 2 summarizes the PCB results.

One sample of lime sludge was collected during the investigation. The sample was collected from 13 feet bgs from the southern portion of the property in the vicinity of the former lime deposition area. The results of the analysis indicate the material is primarily calcium hydroxide—$Ca(OH)_2$.

4.4 Groundwater

Numerous groundwater monitoring wells have been installed in the Property area. Figure 6a shows well locations in the Property area. The wells are color coded in Figure 6a to indicate their well screen depth intervals. Figures 6b, and 6c show the locations of select wells in the vicinity of the Property along with their well screen depth intervals. SLLI's consultants, URS and AMEC, performed groundwater monitoring events in 2000, 2003, 2006, 2007, 2009, and 2010 at the former Rhone-Poulenc site and neighboring sites. Arkema sampled a series of monitoring wells on its property in August 2009.

The groundwater monitoring events at the former Rhone-Poulenc site and neighboring sites detected numerous hazardous substances potentially associated with the former Rhone-Poulenc operations, including volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), pesticides, dioxin/furans, PCBs, and dissolved and total metals (Rhone-Poulenc COIs). The August 2009 groundwater sampling and analysis at the Arkema site noted the presence of a similar range of constituents including VOCs, SVOCs, pesticides, dioxin/furans, and total and dissolved metals.

Results of the samples collected by SLLI from the monitoring wells in the southeast corner of the Property (well W-16-31 and clustered wells W-16-S, W-16-I, and W-16-D), to the north of the Property (W-04), and down-gradient of the Property at Arkema (MWA-72, MWA-75i, MWA-77G) detected similar chemicals as those detected in the groundwater

monitoring wells up gradient of the Property , including VOCs, SVOCs, pesticides, dioxins, PCBs, and dissolved and total metals. The groundwater sampling and analysis results from these wells are presented in Tables 3, 4, 5, and 6. A discussion of the potential COIs compared to the relevant screening value is presented in Section 5, *Source Control Evaluation*.

Rhone-Poulenc COIs are being addressed by SLLI, and RP datasets should be referenced for discussion of all RP COIs in the vicinity of the Property. The source control evaluation focused on existing data for groundwater COIs potentially associated with activities at the Property, namely PCBs, metals, select VOCs, and phthalates from all data sources.

Relative groundwater elevations measured in the groundwater monitoring wells note that groundwater flow direction in the vicinity of the Property is northeast/east toward the Willamette River. Groundwater elevation data from the well cluster (W-16) on the southeast corner of the Property indicates a downward gradient between the Fill/Shallow Zone and underlying groundwater zones. A copy of AMEC's Regional Groundwater Contour Maps from May 2007 and August 2009 are provided in Appendix A.

Groundwater from monitoring wells MWA-72 and W-16-S(13) is indicative of the groundwater quality downgradient of the SIC-Doane Lake Site. The W-16 well cluster lies between the southern portion of the Site (down-gradient of the lime disposal area) and the City of Portland Outfall-22B (OF-22B) storm sewer system. The MWA-72/75I/77g well cluster lies downgradient of the Shredder Residue Fill Area. Although MWA-72/75I/77g is located across North Front Avenue and downgradient of the storm sewer, as illustrated in the Figure 12, the screened interval continues to a depth below the storm sewer pipe, so it is still expected to be reasonably indicative of concentrations of COIs present in the SIC-Doane Lake groundwater that may encounter the backfill.

Specifically as shown in Figure 12, the top of the OF-22B storm sewer pipeline at MH-08 (adjacent to the Site) is at approximately elevation 25 feet (approximately 9 feet bgs) which appears to be entirely in the fill/shallow zone. The pipeline is a 36 inch pipeline that ranges from elevation 20 to 25 feet (approximately) near the Site. Groundwater elevations at W-16-S(13) at the time of sampling (Oct 2009) was 30.45 ft. W-16 –S(16) is screened at elevation 20 to 25 feet (approximately). Monitoring well MWA-72 on the Arkema property is screened at elevation 12 to 22 feet. The groundwater elevation was 27.86 feet in August 2009.

4.4.1 PCBs

Table 6 presents the results of PCB groundwater sampling and analysis results. PCBs were detected in shallow and intermediate wells on the Property in concentrations similar to or lower than those in other area cross-gradient and up-gradient wells. Figures 6b and 6c summarize the PCB groundwater concentrations noted in the Fill/Shallow and Intermediate/Alluvium zone sampled wells.

4.4.2 Metals

The results of the latest (2009 and 2010) groundwater sampling and analysis for metals from wells on and in the immediate vicinity of the Property are presented in Table 3 and Table 4.

The sampling and analysis for each metal, including a comparison of the relative concentrations on the Property and up-gradient and down-gradient from the Property, are presented in Section 5, *Source Control Evaluation*.

4.4.3 VOCs

VOC results for BTEX (benzene, toluene, ethyl benzene, and xylene) compounds in groundwater are provided in Table 5. The sampling and analysis for VOCs, including a comparison of the relative concentrations on the Property and up-gradient and down-gradient from the Property is presented in Section 5, *Source Control Evaluation*.

SECTION 5

SOURCE CONTROL EVALUATION

This section describes the source control evaluation that SIC performed at the property. Figure 7 present a logic diagram used during the source control evaluation process. This section describes the process presented in Figure 7 including;

- Identification of the potential COIs associated with the materials that are present at the Property,
- Comparison of COIs present in materials that have been detected in soil and groundwater relative to their JSCS SLV, and
- Identification of the COIs that were carried forward and to the pathway evaluation or surface soil investigation.

5.1 Potential COIs Associated with Property Activities

5.1.1 COIs Associated with Shredder Residue

According to EPA, the following constituents are potentially present in Shredder Residue:

- Total petroleum hydrocarbons (petroleum hydrocarbons) from fluids;
- Metals (cadmium, chromium, copper, lead, iron, mercury, and zinc);
- Gasoline-related VOCs such as BTEX;
- Bis(2-ethylhexyl)phthalate from the plastic compounds, and
- PCBs associated with recycled items (EPA, 1993, 2011).

Consequently, COIs that are potentially present in Shredder Residue at the Property include heavy metals (cadmium, chromium, copper, lead, iron, mercury, and zinc), BTEX, petroleum hydrocarbons, phthalate esters, and PCBs. Barium, while not typically associated with Shredder Residue, was detected in the 1990 and 1995 EP Tox and TCLP analysis, so it was also evaluated as a potential soil COI. TPH and BTEX will be discussed further, below, relative to soil and groundwater.

5.1.2 COIs Associated with Lime Sludge (Calcium Hydroxide)

The main component of the lime is calcium hydroxide. While the calcium component is not a COI, the lime sludge, when mixed with water, exhibits a high pH that could potentially affect the pH of groundwater. The pH also affects the dissolution of heavy metals present in the surrounding

environment (for some metals, increasing it and for others decreasing it) (EPA, 1992). The lime sludge appears to be present within or near the groundwater at the Property, and therefore the high pH lime sludge could impact metals concentrations in groundwater. This is addressed in the Section 5.2.2.2., *Groundwater*. The residual lime material is buried at the Property over 10 feet below ground surface; therefore, stormwater impacts are not present.

5.1.3 COIs Associated with ESCO Slag

As noted earlier, ESCO slag material may be present along the strip of the Property adjoining the Gould property. Generally, steel-industry slag, a co-product of iron and steel production, is produced and sold for use in a wide range of applications. There have been studies of the potential human health risks associated with the environmental applications (e.g., fill, road base, landscaping) of steel-making slag, which can contain certain metals at concentrations that are higher than typical concentrations in U.S. soil. These metals include antimony, cadmium, chromium, iron, manganese, molybdenum, selenium, silver, thallium, tin, and vanadium (Proctor et al., 2002); (Environmental Science & Technology, 2000). However, the metals have been tested extensively and are not readily leached, and thus do not fail the TCLP (Proctor et al., 2002). Further, slag-to-water partitioning coefficients (K_d values) for metals in slag are higher than corresponding values for soil, indicating that metals in slag are less likely to leach in neutral environmental conditions than are metals in soil (Proctor, et al., 2002).

Slag has not been identified at or near the surface at the Property. There is a potential for slag to be present in the subsurface possibly in contact with groundwater. Consequently, while the site conditions appear not to affect concentrations of metals in groundwater, COIs associated with the steel slag may include antimony, cadmium, chromium, manganese, molybdenum, selenium, silver, thallium, tin and vanadium, and silica. Metals in groundwater are further evaluated in Section 5.2.2.2., *Groundwater*.

5.1.4 COIs Associated with Rhone-Poulenc Activities

As noted above, Rhone-Poulenc COIs were not evaluated any further unless the COI is also associated with materials placed at the Property. For example, arsenic is a Rhone-Poulenc COI that is not associated with the activities at the Property; therefore, it was not carried through SIC's FSCE. Of the Rhone-Poulenc COIs, PCBs and BTEX VOCs were evaluated because they are also SIC COIs. Rhone-Poulenc is performing an area-wide assessment of groundwater impacts of its former operations, pursuant to a 1999 Consent Order with DEQ for ECSI Site ID 155.

5.1.5 Potential Groundwater COIs From Unknown Sources

Previous investigations detected aluminum (dissolved and total) and nickel (dissolved) in groundwater. Aluminum and Nickel were not associated with Shredder Residue, ESCO slag, or Rhone-Poulenc 's activities and therefore the media or source is not known. For the purpose of this evaluation, the constituents are considered potential COIs in groundwater and are discussed in Section 5.2.2., *Groundwater*.

5.1.6 Summary of Property COIs

The COIs associated with the Property were evaluated as part of the source control evaluation as detailed in Table 7, which also identifies whether the COI is a focus of the Rhone-Poulenc investigation.

5.2 Comparison of Potential COIs to JSCS Screening Level Values

The substances listed in Table 7 have been detected at the Property in soil or groundwater or they are associated with activities on the Property and were evaluated as potential COIs. Each constituent was screened against the JSCS SLVs in Tables 1 through 6. Each potential COI on the Property or, for groundwater, in down-gradient groundwater, is discussed below and the conclusion of that evaluation is documented in Table 7.

5.2.1 Soil

5.2.1.1 Metals

Because Shredder Residue samples were analyzed for TCLP metals rather than total, it was not known at the onset of the FSCE whether COI metals were present above the JSCS SLVs. They were therefore considered as potential COIs to be carried forward into the FSCE pathways evaluation, including cadmium, chromium, copper, iron, lead, mercury, and zinc. Similarly, metals potentially associated with ESCO slag or from potential unknown sources that were not already listed above as a potential Shredder Residue COI were also carried forward. These include antimony, barium, manganese, molybdenum, selenium, silver, thallium, tin and vanadium.

Molybdenum, thallium, tin, and vanadium do not have a JSCS SLV. However, if present, they were expected to be accompanied by antimony, selenium, and silver, which do have JSCS SLVs. Therefore, antimony, selenium, and silver were carried forward into the FSCE pathways evaluation, and molybdenum, thallium, tin, and vanadium were not. Iron similarly does not have a JSCS SLV. Additionally, like manganese, it is known to be attributed to locally occurring geologic deposits. Iron was

therefore not carried forward into the FSCE pathways evaluation, but manganese, which has a JSCS SLV, was.

Subsequent to completion of the FSCE by SIC, surface soil samples were collected to determine the extent of the proposed soil cap. Surface soil samples were analyzed for antimony, barium, cadmium, chromium, copper, lead, manganese, mercury, selenium, silver, and zinc. Results are summarized below and presented in Table 10.

Antimony

One of the 17 samples analyzed for antimony exceed the JSCS SLV of 64 mg/kg (DEQ Bioaccumulative Sediment SLV). The exceedance is less than a factor of 10.

Barium

Barium was detected in 13 of the 13 samples analyzed for barium. A JSCS SLV is not available. Relative concentrations barium were similar to other metals analyzed in surface soil samples.

Cadmium

Nine of the 17 samples analyzed for cadmium had detected levels that exceed the JSCS SLV of 1 mg/kg (DEQ 2007 Bioaccumulative Sediment SLV). The detection limit of the remaining 8 samples are above the JSCS SLV and ranged from 1.48 to 6.08 mg/kg. Four of the 9 detected exceedances are greater than a factor of 10, with a maximum concentration of 53.5 mg/kg.

Chromium

Two of the 13 samples analyzed for chromium exceed the JSCS SLV of 111 mg/kg (MacDonald PECs and other SQVs). Both exceedances are less than a factor of 10.

Copper

Four of the 13 samples analyzed for copper exceed the JSCS SLV of 149 mg/kg (MacDonald PECs and other SQVs). All of the exceedances are less than a factor of 10.

Lead

Fifteen of the 17 samples analyzed for lead exceed the JSCS SLV of 17 mg/kg (DEQ 2007 Bioaccumulative Sediment SLV). Six of the 17 exceedances were greater than a factor of 10, with a maximum concentration of 6,980 mg/kg.

Manganese

Three of the 13 samples analyzed for manganese were above the JSCS SLV of 1,100 mg/kg (MacDonald PEC and other SQVs). All exceedances were less than a factor of 10.

Mercury

Seven of the 17 samples analyzed for mercury had detected levels that exceed the JSCS SLV of 0.07 mg/kg (DEQ 2007 Bioaccumulation Sediment SLV). The detection limit of the remaining 9 samples are above

the JSCS SLV and range from 0.09 to 0.31 mg/kg. Four of the 8 detected exceedances are greater than a factor of 10, with a maximum concentration of 4.44 mg/kg.

Selenium

Selenium was not detected in any of the 13 samples. The detection limits were above the JSCS SLV of 2 mg/kg (DEQ Bioaccumulative Sediment SLV) in all of the samples and ranged from 2.39 to 7.84 mg/kg.

Silver

None of the 13 samples analyzed for silver exceeded the JSCS SLV of 5 mg/kg (MacDonald PEC and other SQVs).

Zinc

Nine of the 17 samples analyzed for zinc exceeded the JSCS SLV of 459 mg/kg (MacDonald PEC and other SQVs). Three of the 9 exceedances are greater than a factor of 10, with a maximum concentration of 13,000 mg/kg.

5.2.1.2 Petroleum Hydrocarbons and BTEX

Analysis of soils for petroleum hydrocarbons and BETX had not been conducted at the onset of the FSCE. However, as discussed below in groundwater Section 5.2.2.1, *Petroleum Hydrocarbons and BTEX*, PAH constituents indicative of petroleum hydrocarbon impacts were not detected above JSCS SLVs in down-gradient Arkema monitoring wells MWA-72, -74I, and -77G. If petroleum hydrocarbons were present in the Shredder Residue or other fill materials at a meaningful concentration and were mobile, impacts would likely be present at MWA-72, -74I, or -77G.

Further, as discussed in Section 6.1, *Air Pathway* and 6.3, *Stormwater Pathway,* visual inspections of surface soils and accumulated stormwater at the Property did not identify the presence of petroleum hydrocarbons. As a result, petroleum hydrocarbons as a general classification do not appear to be migrating from the Property and therefore were not carried forward in the pathway evaluation.

5.2.1.3 PCBs

PCBs were detected in Shredder Residue at concentrations that exceed their JSCS SLV. PCBs were carried forward as soil COIs.

Subsequent to completion of the FSCE by SIC, surface soil samples were collected to determine the extent of the proposed soil cap. Surface soil samples were analyzed for Aroclor PCBs.

Fourteen of the 17 samples analyzed for PCBs have detected levels that exceed the JSCS SLV of 0.00039 mg/kg (DEQ 2007 Bioaccumulation SLV) by more than a factor of 10, with a maximum concentration of 30.27 mg/kg. Detection limits of the remaining three samples are above the JSCS SLV and range from 0.01 to 0.04 mg/kg.

5.2.1.4 Bis(2-ethylhexyl) phthalate

Sampling for bis(2-ethylhexyl)phthalate had not been performed at the onset of the FSCE, so it was also carried forward as a soil COI in the pathways evaluation.

Subsequent to completion of the FSCE by SIC, surface soil samples were collected to determine the extent of the proposed soil cap. Surface soil samples were analyzed phthalate esters.

Six of the 15 samples analyzed for bis(2-ethlhexyl)phthalate have detected levels that exceed the JSCS SLV of 330 μg/kg (DEQ 2007 Bioaccumulative SLV). Three of the 6 exceedances are greater than a factor of 10, with a maximum concentration of 77,500 μg/kg. Detection limits for 5 of the 9 remaining samples were above the JSCS SLV and ranged from 371 to 962 μg/kg.

5.2.2 Groundwater

Tables 3 through 6 evaluate each COI in groundwater from the pre-existing data as compared to JSCS SLVs.

5.2.2.1 Petroleum Hydrocarbons and BTEX

PAH constituents indicative of petroleum hydrocarbon impacts were not detected at concentrations above the JSCS SLVs in the representative down-gradient Arkema monitoring wells MWA-72, -74I, and -77G.

PAH constituents indicative of petroleum hydrocarbon impacts were also not detected above the MRLs in samples collected from the W-16 well cluster which is located on the Property cross gradient of the Shredder Residue area. The MRLs are slightly greater than the JSCS SLVs. If petroleum hydrocarbons were present in the Shredder Residue or other fill materials at a meaningful concentration and were mobile, impacts would likely be present at MWA-72, -74I, or -77G. As a result, existing data showed that petroleum hydrocarbons as a general classification did not appear to be migrating through groundwater and therefore were not carried forward in to the FSCE groundwater pathway evaluation.

BTEX constituents were not detected at concentrations above the JSCS SLVs in the representative down-gradient Arkema monitoring wells MWA-72, -74I and-77G (Table 5).

Benzene and m,p-xylene each slightly exceed JSCS SLVs in the Fill/Shallow Zone samples collected from the W-16 well cluster, which is located on the Property cross-gradient of the Shredder Residue area. Benzene slightly exceeded the JSCS SLV in the Intermediate/Alluvium Zone.

The concentrations of VOCs in groundwater samples from down-gradient Arkema wells MW-72, -75i, and -77G do not exceed SLVs for any BTEX component, including benzene and m,p-xylene. In those down-gradient wells, concentrations are typically lower, or similar to up-gradient wells W-

15-S(13), -I(38), and D(62). Thus, the existing groundwater data suggest the Property does not appear to be a significant source of VOCs to groundwater and they are not carried forward into the groundwater pathway evaluation.

5.2.2.2 Metals

As indicated in Tables 3, 4, and 7, the only metal COIs detected in groundwater at the Property or in the down-gradient Arkema wells above the JSCS SLVs are total and/or dissolved aluminum, copper, lead, manganese, nickel, and selenium. Each is discussed below.

Aluminum

Total aluminum was detected above the JSCS SLV of 200 μg/L (MCL) at monitoring well W-16-31 (located on the Property cross-gradient of the Shredder Residue) in 2006 at 330 μg/L. However, total aluminum was not detected above the laboratory reporting limit of 100 μg/L in 2009 in W-16-31. Dissolved aluminum was not detected above the JSCS SLV at the W-16 well cluster.

Total aluminum was detected above the JSCS SLV at a concentration of 428 mg/L in the representative down-gradient Arkema monitoring well MWA-72. However, a duplicate sample of this same well detected total aluminum well below the JSCS. Dissolved aluminum was not detected above the JSCS SLV in the representative down-gradient wells.

Thus, the existing groundwater data suggest aluminum does not appear to be associated with on-site activities and does not appear to be migrating through groundwater, and therefore it was not carried forward into the FSCE pathways evaluation.

Arsenic

Arsenic was not identified as a COI associated with the Shredder Residue, however it is included in this discussion because elevated levels compared to upgradient wells were observed at Alluvium Zone wells W-16-31 and W-16-I(50) and is potentially associated with elevated groundwater pH from lime disposal in the area. In general total and dissolved arsenic were detected above the JSCS SLV of 0.045 ug/L (Tap Water PRG) at all wells sampled in the area upgradient and downgradient of the Property, this is thought to be attributable to naturally occurring arsenic or in some areas is associated with the Rhone Poulenc site. A brief discussion of the wells surround the SIC-Doane Lake Property is presented below.

Total and dissolved arsenic were measured at similar concentrations in the W-16 well cluster, located on the northeast corner of the Property (downgradient of the lime disposal area). In particular, the 2009 data set shows total and dissolved arsenic was detected in a groundwater sample from the Fill/Shallow Zone [W-16-S(13)] at 2 ug/l, from the Alluvium Zone [W-16-30 and W-16-I(50)] at 77 and 47 ug/L respectively, and from the deep Alluvium Zone [W-16-D(85)] at 2 ug/L.

Upgradient of the Site, dissolved arsenic was reported at a concentration of 28 ug/L in Alluvium Zone well W-15-I(38) and 6 ug/L in deep Alluvium Zone Well W-15-D(62) on the Metro property, immediately up-gradient from the Property. Arsenic analysis was not performed on groundwater samples from the Fill/Shallow Zone well on the Metro site, W-15-I(23).

Downgradient of the lime disposal area and the W-16 well cluster, dissolved arsenic was reported at a concentration of 10 ug/L in Fill/Shallow Zone well MWA-73, non-detect (with a detection limit of 4ug/L) in Alluvium Zone well MWA-7i, and 92 ug/L in Alluvium Zone well MWA-12i(d).

Downgradient of the Shredder Residue, dissolved arsenic was reported by Arkema at an estimated concentration of 7.2 ug/L in the Fill/Shallow Zone well MWA-72, 18.7 ug/L in Alluvium Zone well MWA-75i, and 5.85 ug/L in the Alluvium Zone well MWA-77g.

Cross-gradient from the Shredder Residue area total and dissolved arsenic were detected at Fill/Shallow Zone monitoring well W-04, at 3 ug/l. Well W-04 Alluvium and Basalt Zones were not sampled for arsenic during other events in 2009. However, in 2007 dissolved arsenic was reported at a concentration of 2 ug/L at Alluvium Zone well W-04-I(49), and at 7ug/L at Basalt Zone well W-04-89.

Based on the distribution of arsenic described above, the presence of arsenic at the W-16 well cluster at concentrations exceeding the JSCS SLV do not appear to be associated with the disposal of Shredder Residue at the site. DEQ believes the observed arsenic is likely associated with naturally occurring arsenic. The variability of arsenic concentrations across the area may be associated with redox or pH variations, either naturally occurring or as the result of contamination releases from adjacent sites. As discussed in Section 5.1.2 COIs Associated with Lime Sludge (Calcium Hydroxide), elevated pH associated with the lime could impact metals concentrations. In the case of arsenic elevated pH increases the potential for dissolution of arsenic. However, as discussed below pH levels return to background quickly in areas outside of the former lime disposal area.

The 2009 data set shows pH was observed in a groundwater sample from the Fill/Shallow Zone [W-16-S(13)] at 12.8, from the Alluvium Zone [W-61-31 and W-16-I(50)] at 8.49 and 8.78, and from the deep Alluvium Zone [W-16-D(85)] at 7.78.

Upgradient of the Site, pH was reported at 6.9 in Alluvium Zone well W-15-I(38 on the Metro property immediately up-gradient from the Property. pH was not reported on the Fill/Shallow Zone well W-15-I(23) or deep Alluvium Zone Well W-15-D(62).

Downgradient of the lime disposal area, pH was reported at 6.65 in Fill/Shallow Zone well MWA-73, 6.53 in Alluvium Zone well MWA-7i, and 6.59 in Alluvium Zone well MWA-12i(d).

Downgradient of the Shredder Residue, pH was reported by Arkema at 6.62 in the Fill/Shallow Zone well MWA-72, 6.63 in Alluvium Zone well MWA-75i, and 6.86 in the deep Alluvium Zone well MWA-77g.

Based on the low concentrations observed in the shallow groundwater well immediately downgradient of the lime disposal area (W-16-S(16) at 2 ug/L), the significant decrease in arsenic observed in the Alluvium well MWA-7i, directly downgradient of the Alluvium wells W-16-31 and W-16-I(50), and the lack of correlation between elevated pH and elevated dissolved arsenic, there does not appear to be migration of arsenic through the Fill/Shallow or upper Alluvium groundwater at the Property. However, elevated arsenic is observed at the downgradient deeper Alluvium well MWA-12i(d) and may be associated with the lime disposal area. Therefore, arsenic was carried forward into the groundwater pathway evaluation.

Copper

Total and dissolved copper were not detected at the W-16 cluster (located on the Property cross-gradient of the Shredder Residue) above the JSCS SLV of 2.7 mg/L (EPA's 2004 NRWQC).

Total and dissolved copper were detected slightly above the JSCS SLV of 2.7 μg/L (EPA's 2004 NRWQC) in the representative down-gradient Arkema monitoring well MWA-72. Total copper was detected at a concentration of 10 μg/L, however, a duplicate sample this location was below the detection limit of 0.03 μg/L. Dissolved copper was detected at a concentration of 6 μg/L.

Thus, the existing groundwater data suggest there is not a significant source of copper in groundwater at the Property. However given the exceedance of the JSCS SLV at monitoring well MWA-72, copper was carried forward into the groundwater pathway evaluation.

Lead

Total lead was detected in monitoring wells W-16-S(13) and W-16-31 (located on the Property cross-gradient of the Shredder Residue) above the JSCS SLV of 0.54 mg/L (EPA's 2004 NRWQC). Total lead was detected at 4.5 μg/L in 2006 at W-16-31 and at 80 μg/L in 2009 at W-16-S(13). Dissolved lead was not detected above the JSCS SLV in any of the W-16 wells.

Total lead was detected (estimated value) slightly above the JSCS SLV in the representative down-gradient Arkema monitoring well MWA-72 at a level of 0.89 μg/L. However, it was not detected above MRL in a duplicate sample collected at this location. Dissolved lead was not detected above the JSCS SLV in the representative down-gradient well.

Thus, the existing groundwater data suggest there is not a significant source of lead in groundwater at the Property, therefore, it was not carried forward into the FSCE groundwater pathway evaluation.

Manganese

The total and dissolved manganese concentrations are greater in the Alluvium and Basalt Zones than in the Fill/Shallow Zone, suggesting they are naturally occurring or associated with off-site or up-gradient sources, or that differing redox potential in the lower zones affects the solubility of the manganese. Up-gradient Rhone-Poulenc monitoring wells show

similar concentrations. Further, the concentration of manganese is six times lower at the representative down-gradient Arkema MWA-72. Thus, there does not appear to be migration of manganese through groundwater at the Property and it was not carried forward into the FSCE groundwater pathway analysis. Manganese was evaluated, however, in the soil pathway analysis.

Nickel

Total and dissolved nickel were detected above the JSCS SLV of 16 μg/L (EPAs 2004 NRWQC) in W-16-S(13) (located on the Property cross-gradient of the Shredder Residue area). Total nickel was detected in W-16-S(13) in 2006 at 29 μg/L and in 2009 at 34 μg/L. Dissolved nickel was detected at W-16-S(13) in 2006 at 28 μg/L and in 2009 at 33 μg/L.

However, dissolved nickel was not detected in the representative down-gradient Arkema monitoring well MWA-72 above the JSCS SLV. The representative down-gradient well was not sampled for total nickel; however, similar results would be expected given the close relationship of the total and dissolved nickel concentrations observed in area-wide monitoring data.

Thus, there does not appear to be migration of nickel through groundwater at the Property. Nickel was therefore not carried forward to the pathway evaluation.

Selenium

Total and dissolved selenium were detected above the JSCS SLV of 5 μg/L (EPA NRWQC) in W-16-S(13) (located on the Property cross-gradient of the Shredder Residue). Total selenium was detected a 149 μg/L and dissolved selenium was detected at 177 μg/L.

However, neither total or dissolved selenium were detected above the JSCS SLV in the representative down-gradient well MWA-72.

Since the concentrations of total and dissolved selenium do not exceed the JSCS SLV in the down-gradient Arkema wells, there does not appear to be migration of selenium through a groundwater pathway from the Property. Selenium was evaluated, however, in the soil pathway analysis.

5.2.2.3 PCBs

Table 6 presents groundwater data from previous investigations for PCBs, and Figures 6b and 6c show the area-wide detections of PCBs in the Fill/Shallow and Intermediate/Alluvium hydrogeologic units. The highest PCB concentrations were detected in groundwater samples collected from the Fill/Shallow Zone beneath the Rhone-Poulenc site cross-gradient from the Property (e.g., 37,824 picograms per liter [pg/L] in MW-05) and up-gradient (e.g., 28,695 pg/L in MW15-I on Metro property). The relevant data from the most recent 2009 (SLLI) and 2010 (Arkema) investigations is discussed below they apply to each hydrogeologic unit.

Fill/Shallow Zone (Figure 6b). In 2009, the monitoring well located at the Property cross gradient of the Shredder Residue area, screened at 13 feet bgs in the Fill/Shallow Zone (W-16-S), showed a concentration of 10,328 pg/L (summation of congeners).[4] This concentration is lower than up-gradient well W-15 at Metro, screened at 23 feet bgs in the Fill/Shallow Zone, where PCBs were detected at 28,695 pg/L, which is approximately three times the PCB concentration in W-16-S. MWA-72 which is screened in the Fill/Shallow Zone and down-gradient of the Property at the Arkema property, showed a concentration of 431 pg/L in 2010. The JSCS SLV is 64 pg/L. Well MWA-72 is 1,000 feet from the river.

Intermediate/Alluvium Zone (Figure 6c). According to the sampling data for each location, the monitoring well W-16-31 on the subject Property, screened at 31 feet bgs in the Alluvium Zone and located at the Property cross gradient of the Shredder Residue area, showed a concentration of 124 pg/L, which is slightly above the JSCS SLV of 64 pg/L. In comparison, concentrations in up-gradient and cross-gradient wells in the same hydrogeologic zone were all higher. Monitoring well MW-05-34, cross-gradient and potentially up-gradient from the Property and screened at 34 feet bgs in the Alluvium Zone, detected PCBs at 27,300 pg/L. Monitoring well MW-05-52, also potentially up-gradient from the Property and screened in the Alluvium Zone at 52 feet bgs, detected PCBs at 21,072 pg/L.

SLLI did not sample Intermediate zone monitoring wells (MWA-75i, MWA-12(I), or MWA7(I) for PCBs in 2009.

Deep/Basalt Zone. The SIC monitoring well W-16-D(85) screened at 85 feet bgs in the Basalt Zone was not sampled for PCBs

With respect to all zones, the congeners detected in monitoring wells W-15, W-16, W-04, MW-05, RP-15, and RP-17 are similar. Thus, these area-wide detections of PCBs likely represent source material dispersed throughout the larger Doane Lake that settled into sediments, where they now serve as very localized sources. Given the largely hydrophobic nature of PCBs, the area of influence of any specific PCB source is small, consistent with the wide swings in concentrations in neighboring samples in the same fill layers. The area-wide pattern does not suggest any "plume" of PCBs. Nonetheless, PCBs were carried forward as a groundwater COI into the pathway analysis because they are present in on-site Shredder Residue above the JSCS SLV and they are not naturally occurring.

5.2.2.4 Bis(2-ethylhexyl)phthalate

Rhone-Poulenc sampled monitoring well W-16-S(13), screened in the Fill/Shallow Zone, for bis(2-ethylhexyl)phthalate in March 2007. It was not detected above the MRL; however, the MRL was 3 ug/L and the method

[4] PCB groundwater data discussed using total PCB congeners.

detection limit (MDL) appears to have been 1 ug/L. The JSCS SLV is 2.2 ug/L. If bis(2-ethylhexyl)phthalate was present above the JSCS SLV, it would have been detected and reported as an estimated value. Given the detected levels of bis(2-ethylhexyl)phthalate in soil and the lack of downgradient groundwater data, bis(2-ethylhexyl)phthalate was carried forward into the groundwater pathway evaluation.

5.3 COI Conclusions

5.3.1 Soil

Figure 7 provides a flow chart that demonstrates the screening used for identification of potential soil COIs. As a result of the COI screening, the following COIs were found to be potentially present in soils at the Property and were carried forward as soil COIs into the pathways evaluation:

- PCBs
- Metals (antimony, barium, cadmium, chromium, copper, lead, manganese, mercury, selenium, silver, and zinc)
- Bis(2-ethylhexyl)phthalate

The list of COIs in soil that were carried forward to the pathway evaluation are listed in Table 7.

5.3.2 Groundwater

Based on the preceding discussion above, arsenic, copper, bis(2-ethylhexl)phthalate and PCBs are carried forward as groundwater COIs into the pathway analysis. The groundwater pathway is evaluated further in Section 6, *Discussion of Potential Pathways*.

SECTION 6

DISCUSSION OF POTENTIAL PATHWAYS

This section discusses the potential pathways from the Property to the Willamette River to evaluate whether potential source control measures are needed for identified COIs in soil or groundwater.

The facility is located approximately 1,500 feet from the Willamette River. Therefore, the over-water/in-water pathway is not applicable. The remaining pathways considered are air, groundwater, and stormwater.

6.1 Air Pathway

Metals, PCBs, and bis(2-ethylhexyl)phthalate all have very low volatility; therefore, volatilization to air is not a relevant pathway. Petroleum hydrocarbons may volatilize if present; however, Petroleum hydrocarbons have not been visually observed on surface soils, stressed vegetation is not present, and sheen has not been observed on on-site stormwater. Therefore, concentrations of TPH from which volatilization could be expected to occur are not present.

With respect to potential erosion by wind, based on the topographical survey and visual inspection of the Property in June 2011, approximately 70 percent of the Property is covered with topsoil and has established vegetation. As illustrated in Figure 4, Shredder Residue material is visible in the northeastern portion near Front Avenue, and is visible near the East Doane Lake remnant.

The areas where Shredder Residue is exposed at the surface and are not covered with vegetation may potentially be wind-erodible during extreme conditions—for example, if higher than average winds occur during long dry periods. These conditions could allow COIs in particulate matter to be transported off the Property.

Also, exposed Shredder Residue that comes into contact with stormwater could result in the migration of COIs via stormwater runoff to the East Doane Lake remnant. Once dry, the lake bed could become dry and erodible by wind.

Therefore, SIC performed a focused source control investigation at the Property with respect to the potential wind-erodible pathway. The source control investigation is discussed in Section 7, *Source Control Investigation*.

6.2 Groundwater Pathway

Based on the discussion above, arsenic, copper, bis(2-ethylhexl)phthalate and PCBs are carried forward as groundwater COIs into the pathway analysis.

Arsenic

Several factors make the migration of arsenic through groundwater from the Property to the Willamette River an unlikely pathway. They are:

- Elevated levels of arsenic appear to be associated with high pH levels located in the former lime disposal area. Shallow and intermediate zone wells show that elevated levels of arsenic are not migrating across North Front Ave in these zones. Given the rapid decrease in pH levels, the ability of the elevated arsenic levels observed in the deeper Alluvium [MWA-12i(d)], to travel 1,500 feet to the Willamette River in significant concentrations is unlikely.
- Additionally, the potential for preferential transport of contaminated groundwater in the OF-22B storm sewer pipe or pipe backfill has been greatly reduced by the implementation of the OF-22B Interim Source Control Measure (IRAM). The OF-22B ISCM was implemented by SLLI to address Rhone Poulenc related contamination migrating preferentially through the OF-22B system. The ISCM included lining the stormwater conveyance lines and manholes to eliminate intrusion of contaminated groundwater into the OF-22B system. It also included the installation of a cut off collar approximately 300 feet upstream of the outfall as shown in Figure 13. The purpose of the collar is to reduce the potential for transport in the trench backfill that surrounds the storm sewer pipe. This is in additional to the significant attenuation that is expected given the distance from the site o to the River along OF-22B line (approximately 3,000-feet).

Copper

Several factors make the migration of copper through groundwater from the Property to the Willamette River an unlikely pathway. They are:

- Given the relatively low exceedance ratio of dissolved copper in the down gradient well MWA-72 of 2, the ability of the copper plume to travel 1,500 feet to the Willamette River in significant concentrations is unlikely.
- Additionally, the potential for preferential transport of contaminated groundwater in the OF-22B storm sewer pipe or pipe backfill has been greatly reduced by the implementation of the OF-22B Interim Source Control Measure (IRAM). The OF-22B ISCM was implemented by SLLI to address Rhone Poulenc related contamination migrating preferentially through the OF-22B system. The ISCM included lining the stormwater conveyance lines and manholes to eliminate intrusion of contaminated groundwater into the OF-22B system. It also included the installation of a cut off collar approximately 300 feet upstream of the outfall as shown in Figure 13. The purpose of the collar is to reduce the potential for transport in the trench backfill that surrounds the storm sewer pipe. This is in additional to the significant attenuation that is expected given the distance from the site o to the River along OF-22B line (approximately 3,000-feet).

PCBs

Several factors make the migration of PCBs through groundwater from the Property to the Willamette River an unlikely pathway. They are:

- PCBs are non-polar compounds, with very low solubility in water (Baird, 1995). This in turn leads to a strong affinity for sorption to soils and organic fractions that groundwater passes through. Given the relative insolubility and sorption capacities of PCBs, the ability of a PCB "plume" to travel 1,500 feet to the Willamette River in significant concentrations is unlikely.
- The 2010 sample result from down-gradient well MWA-72 in the Fill/Shallow Zone layer suggests PCBs from the Property are not migrating to the Willamette River because the detected concentration is less than an order of magnitude above the very conservative JSCS SLV and similar in concentration to the total PCB concentrations in rainfall in the Portland area (Blischke, 2009).
- Lastly, Rhone-Poulenc implemented the OF-22B source control measure, which included lining the OF-22B conveyance system to prevent intrusion of groundwater into the stormwater piping. This measure eliminates the potential for groundwater from the site to infiltrate the OF-22B conveyance system and discharge to the Willamette River. The potential for preferential transport of contaminated groundwater in the OF-22B storm sewer pipe or pipe backfill has been greatly reduced by the implementation of the OF-22B Interim Source Control Measure (IRAM). The OF-22B ISCM was implemented by SLLI to address Rhone Poulenc related contamination migrating preferentially through the OF-22B system. The ISCM included lining the stormwater conveyance lines and manholes to eliminate intrusion of contaminated groundwater into the OF-22B system. It also included the installation of a cut off collar approximately 300 feet upstream of the outfall as shown in Figure 13. The purpose of the collar is to reduce the potential for transport in the trench backfill that surrounds the storm sewer pipe.

Bis(2-ethylhexyl)phthalate

Several factors make the migration of bis(2-ethylhexyl)phthalate through groundwater from the Property to the Willamette River an unlikely pathway. They are:

- Given the high Koc (87,420 to 510,000) of bis(2-ethylhexyl)phthalate and the distance of the site from the river, the ability of a potential plume, to travel 1,500 feet to the Willamette River in significant concentrations is unlikely.
- Bis(2-ethylhexyl)phthalate is not elevated in AOPC 14 river sediment (LWG 2009).

- Additionally, the potential for preferential transport of contaminated groundwater in the OF-22B storm sewer pipe or pipe backfill has been greatly reduced by the implementation of the OF-22B Interim Source Control Measure (IRAM). The OF-22B ISCM was implemented by SLLI to address Rhone Poulenc related contamination migrating preferentially through the OF-22B system. The ISCM included lining the stormwater conveyance lines and manholes to eliminate intrusion of contaminated groundwater into the OF-22B system. It also included the installation of a cut off collar approximately 300 feet upstream of the outfall as shown in Figure 13. The purpose of the collar is to reduce the potential for transport in the trench backfill that surrounds the storm sewer pipe. This is in additional to the significant attenuation that is expected given the distance from the site o to the River along OF-22B line (approximately 3,000-feet).

In conclusion, the groundwater pathway is not a significant pathway for arsenic, copper, PCBs, and bis(2-ethylhexyl)phthalate to discharge from the Property to the Willamette River.

6.3 Stormwater Pathway

As discussed above, the aboveground Shredder Residue materials were removed from the subject Property at the end of 1995 or early in 1996. The majority of areas on the Property with below-grade Shredder Residue are now covered with topsoil and vegetation. There are two areas of the Property where Shredder Residue is exposed, as indicated in Figure 4.

The site has no direct connection to the City of Portland stormwater conveyance system.

No visible discharge of stormwater was identified from the Property directly to Front Avenue during periods of extended, heavy rainfall in 2009, 2010, and 2011. Limited runoff appears to have the potential to occur in the southeast corner near monitoring well cluster W-16; however, there is no record of or visible indications of Shredder Residue in this area. There is some potential for stormwater that accumulates near the northeast corner of the Property to pond and commingle with stormwater from the adjacent NL/Gould site, and eventually collect in a ditch along the eastern edge (Front Avenue) of the NL/Gould Property. There are visible indications of Shredder Residue being present near the gate on the Property that could impact stormwater that accumulates in this location. During extended periods of heavy rainfall, there is some potential for surface water accumulating in the Doane Lake remnant to back up to the north onto the NL/Gould site.

As noted earlier (Section 4, *Existing Source Controls and Best Management Practices)*, several controls are in place at the Property. A large portion of the Shredder Residue was covered with gravel in the late 1990's, a silt fence was installed, there are ditches along the southern

(along the former lime sludge pond) and eastern (Front Avenue) sides of the Property that collect stormwater runoff from the Shredder Residue fill area, the site is locked 24 hours per day, and vegetation is maintained.

A detailed topographical (topo) survey was performed in June 2011 to help assess potential stormwater flow patterns. As noted earlier, the topo survey shows there is no evidence of stormwater discharging directly to Front Avenue from the Property.

The topo survey and visual assessments conducted in 2009-11 also confirmed that stormwater does not discharge from the East Doane Lake remnant to the Air Liquide site.

Based on these findings, stormwater does not currently appear to be a significant pathway that requires source control actions.

6.4 Potential Pathways Conclusion

Based on an evaluation of the COIs and potential pathways, DEQ reached the following conclusions:

- The over-water/in-water pathway is not relevant due to the physical location of the Property.
- The groundwater pathway is not a complete pathway based on the concentration of detected COIs in down-gradient wells, properties of groundwater COIs, and distance to the river
- Stormwater is not a significant pathway based on the absence of any direct discharge from the Property into the stormwater system and on the topography and drainage patterns. To the extent there is any indirect discharge, it will be addressed by the proposed source control measure.
- The windblown dust pathway is a potential pathway requiring further assessment. An assessment of surface soils was performed to aid in the selection of the source control measure(s), see Section 7, Source Control Investigation.

SECTION 7

SOURCE CONTROL INVESTIGATION

As noted in Section 6, there is a potential for windblown dust to indirectly migrate through stormwater to the Willamette River. DEQ also identified the potential for the erosion of contaminated soil from the Shredder Residue fill area to the Remnant Doane Lake bottom, which could then potentially become wind-eroded during extreme conditions.

In response to these findings, SIC performed a source control investigation in the first quarter of 2012. The source control investigation consisted of surface soil sampling. The results of SIC's surface soil investigation were compiled and submitted to DEQ on April 4, 2012, as an Addendum to the FSCE Report.

In June 2012, the City of Portland collected additional surface and near-surface soil samples in the vicinity of the Property.

Results of SIC's surface soil sampling were screened against JSCS SLVs in Section 5.2.1. The data were used in the source control investigation to determine if wind erosion has mobilized COIs in significant quantities beyond the Shredder Residue fill area. Then they were then used to determine the extent of a potential removal action to address exposed Shredder Residue.

A summary of the source control investigation activities follows.

7.1 Surface Soil Investigation

SIC conducted surface soil sampling for potential COIs in soil. The surface soil sampling was conducted to evaluate if wind erosion has mobilized COIs in significant quantities beyond the Shredder Residue fill area. The September 13, 2011 FSCE Report (Bridgewater Group, Inc.) includes an analysis of a 5-year wind rose showing that, if wind erosion and deposition has occurred, it would have most likely carried materials to the north and south. The sample locations were therefore selected to include those areas and to generally verify that, if the Property was capped, the proposed cap would contain soils with COIs exceeding the appropriate site screening values.

Figure 8 identifies the locations of surface soil samples that were collected at the Property to evaluate the potential for a windblown dust pathway. Initially, the investigation involved the collection of 13 surface soil samples designated as DLS-001 through DLS-013. These surface soil samples were collected along the northern (project north) edge of the property along the Gould property, from the remnant lake bottom, along the southern fence line between Shredder Residue fill area and the former lime sludge accumulation area, along the eastern property boundary fence line along Front Avenue, and along the Front Avenue right-of-way (from herein referred to as the "parkway").

The results of the initial round of samples dictated the need for additional samples to locate the outer edge of COIs were elevated. Therefore, SIC collected three additional samples, DLS-014 through DLS-16 from the remnant lake bottom area and the former lime sludge area. One final sample, DLS-020, was collected in the former lime sludge area based on the results obtained from DLS-16. In total, SIC collected 18 surface soil samples from 17 locations. The sample locations are shown on Figure 8.

Additionally, in June 2012, the City took seven samples from three locations in the area between the Property and Front Avenue. Those samples locations are also approximately indicated on Figure 8.

The initial round of surface soil samples were analyzed for PCBs, bis(2-ethylhexyl)phthalate, and total metals (antimony, barium, cadmium, chromium, copper, lead, manganese, mercury, selenium, silver, and zinc). The results of the initial round of sampling were used to refine the analytic list for subsequent samples. If a constituent was not detected above the DEQ/EPA JSCS SLVs in the initial round of samples, it was not analyzed for in subsequent samples. Table 8 lists the soil sample analytical procedures that were used. Table 9 summarizes the soil sample collection dates and observations.

City of Portland samples were analyzed for select metals (cadmium, copper, lead, mercury, and zinc) and PCBs. Tables 10 and 11 provide a summary of soil sample data as reported by the City.

7.2 Surface Soil Sample Results

The surface soil results were used to determine if wind erosion has mobilized COIs in significant quantities beyond the Shredder Residue fill areas. Then they were used to determine the extent of a potential removal action to address exposed Shredder Residue. This section summarizes the surface sample results. Results are presented in Tables 10 and 11, where they are compared to several screening level values:

- EPA's Focused Preliminary Remediation Goals (EPA Focused In-Water PRGs or PRGs) for Portland Harbor which were outlined in the April 21, 2010 letter from EPA to the Lower Willamette Group (LWG) (USEPA, 2010). These PRGs were developed for exposure scenarios relevant to in-water sediment receptors and therefore are not directly applicable to this upland site, but are provided for reference.
- DEQ's JSCS SLVs, which are applied as an initial screen for upland Portland Harbor sites per the JSCS. While comparisons to the JSCS SLVs are provided in the tables and discussed in Section 5.2.1, they are not discussed below except where there is no EPA Portland Harbor Focused PRG.

As listed in Tables 10 and 11 and discussed below, the detected concentrations of metals, PCBs, and bis(2-ethylhexyl)phthalate exceed the EPA Focused PRGs and the JSCS SLVs in many samples.

PRGs and JSCS SLVs were used in the preliminary evaluation of the site relative to potential risks to the Willamette River. They were not used directly as source control action levels for the remedial action. Given the site's distance from the river and lack of direct stormwater pathway to the river, the application of an attenuation value was determined by DEQ to be reasonable and appropriate for this site to determine the extent of a potential remedial action. Therefore, Table 10 also compares the results of the investigation to an action level of ten times (10Xs) the EPA Focused PRG or 10Xs the JSCS SLVs if an EPA Focused PRG has not been established. Direct comparisons to the JSCS SLVs is discussed in Section 5.2.1.

7.2.1 Metals

Surface soil samples were analyzed for antimony, barium, cadmium, chromium, lead, mercury, selenium, silver, and zinc. Limited metals were detected above the PRGs. Total metals results are tabulated in Table 10. The City's report, which includes laboratory data sheets, is provided in Appendix C. The metals results are shown on Figure 9. Each metal is discussed below.

Antimony was not detected above 10Xs the JSCS SLV. There is no EPA Focused In-Water PRG for antimony. The City did not test for antimony.

Barium was detected at all locations at concentrations ranging from 57 mg/kg to 1,760 mg/kg. There is no EPA Focused In-Water PRG or JSCS SLV for barium.

Cadmium was detected above 10Xs the EPA Focused In-Water PRG in only one location, DSL-008, which is within the Area of Concern. For ease of comparison in the discussions of the contaminants, the area denoted as 10 times EPA's Focused In-Water Total PCB PRG has been referred to as the "Area of Concern."

Chromium and copper were detected in all samples tested well below 10Xs the EPA Focused In-Water PRG. Most samples were within typical background concentrations[5] except for locations DLS-008, DLS-009, DLS-011, DLS-012, and SD-C, which are within the Area of Concern.

Lead was detected above 10Xs the EPA Focused In-Water PRG in samples DLS-008, DLS-009, DLS-011, DLS-016, and SD-C. All are within the Area of Concern.

Manganese was below 10Xs the JSCS SLV in all samples tested. It was detected below typical background concentrations at all but one location (DLS-006). Sample DLS-006 is in an area that showed no signs of Shredder Residue impacts, but appears to be a remnant Doane Lake sediment sample. The City did not test for manganese.

[5] Background concentrations were obtained from GeoEngineers, *Oregon Background Metals Evaluation Report*, June 30, 2010.

Mercury was below 10Xs the EPA Focused In-Water PRG in all samples tested except location DLS-008, where it was detected slightly above the PRG. DLS-008 is within the Area of Concern. The MRL was consistently below the PRG.

Selenium was not detected above the MRL in samples tested. There is not an EPA Focused In-Water PRG for selenium. The MRLs were consistently below 10Xs the JSCS SLV and near the JSCS bioaccumulation screening value. The City did not test for selenium.

Silver was detected at a single location, DLS-008, below 10Xs the EPA Focused In-Water PRG. All other results were not detected above the MRL. The City did not test for silver.

Zinc was detected above 10Xs the EPA Focused In-Water PRG in samples DLS-002, DLS-008, DLS-009, DLS-011, and SD-C. All of these locations, except for DLS-002, are in the Area of Concern. Zinc was detected above background concentrations at several locations that showed no signs of Shredder Residue impacts. These locations tended to be immediately below or adjacent to galvanized chain link fencing that is presumptively high in zinc.

7.2.2 PCBs

Figure 10 shows the PCB concentrations in the surface soil samples detected at 10Xs or greater than the EPA Focused In-Water PRG of 0.0295 μg/kg. The sum of PCB Aroclors was detected above 10Xs the PRG at locations DLS-003, DLS-007, DLS-008, DLS-009, DLS-011, DLS-012, DLS-016, SD-B, and SD-C. PCBs were detected, but at less than 10Xs the PRG of 0.295 mg/kg at locations DLS-002, DLS-004, DLS-10, DLS-013, DLS-014, DLS-015, DLS-020 and SD-A. PCBs were not detected in samples DLS-001, DLS-005, and DLS-006.

As indicated in Figure 11, consolidation of materials and capping are proposed to remediate all concentrations above 10Xs the EPA Focused In-Water PRG (0.0295 mg/kg) also will, with the addition of a very small incremental area, cap all measured concentrations above the EPA Focused In-Water PRG itself. For ease of comparison in the discussions of other contaminants above and below, the area denoted as 10Xs EPA's Focused In-Water Total PCB PRG has been referred to as the "Area of Concern."

Table 11 presents the PCB results. MDLs in each case were below 10Xs the EPA Focused In-Water PRG and in all but one case were below the EPA Focused In-Water PRG itself.

7.2.3 Bis(2-ethylhexyl) phthalate

There is no EPA Focused In-Water PRG for bis(2-ethylhexyl)phthalate. Therefore, SIC applied 10Xs the JSCS bioaccumulation SLV establishing an SLV of 3,300 ug/kg. Bis(2-ethylhexyl)phthalate was detected above 10Xs the JSCS SLV at locations DLS-008, DLS-009, and DLS-011. Each

of these is within the Area of Concern identified for PCBs in Section 7.2.2 above. Sample MDLs are all below 10Xs the JSCS SLV. The City did not test for bis(2-ethylhexyl)phthalate.

Table 11 presents the bis(2-ethylhexyl)phthalate results. The bis(2-ethylhexyl)phthalate results are shown on Figure 10.

7.2.4 FSCE Conclusions

The surface soil sample results indicate that soil in locations DLS-007, DLS-008, DLS-009, DLS-011, DLS-012, DLS-016, SD-B, and SD-C exceed the 10Xs PRG screening levels discussed above for Property COIs and are all considered within the Area of Concern. Location DLS-003 is also within the Area of Concern and also shows exceedances, although not as significant. The Area of Concern is generally coextensive with the area known to have been impacted by Shredder Residue fill.

The results do not indicate that water or wind erosion of Shredder Residue impacted soil or COIs to the Doane Lake remnant is a pathway of concern. Samples in the Doane Lake remnant appear not to be impacted, other than the detection of manganese in sample location DLS-006. The manganese detection in sample location DLS-006 appears to be an outlier. Manganese does not appear to be associated with Shredder Residue, and therefore the presence of manganese appears to be associated with naturally occurring geologic formations or off-site sources.

Samples to project north and project south also have relatively low concentrations of all COIs. As these are the primary wind directions, this indicates there has not been significant wind erosion. The presence of zinc at location DLS-002 also appears to be an outlier and likely associated with the galvanized fencing or off-site sources. However, this area also falls within the area proposed to be capped.

PCBs should be considered an indicator constituent for future actions. As illustrated in the discussion of results above, the Area of Concern delineated by PCB concentrations is almost entirely overlapping with detections above any screening levels for the remainder of Property COIs.

DEQ has previously identified the Property as a medium priority for a source control evaluation.

Section 8

SOURCE CONTROL DECISION

As noted in Section 7, PCBs, certain metals, and bis(2-ethylhexyl)phthalate were detected in surface soils greater than JSCS SLVs. While significant direct or indirect pathways to the River were not identified by the FSCE, DEQ choose to implement a protective cap to limit the potential of offsite migration under current or future conditions. This will decrease the potential of Shredder Residue to impact adjacent sites and further decrease the potential to impact the river. DEQ chose to implement this action due to the elevated levels of PCBs, bis(2-ethylhexyl)phthalate, and metals in surface soils, the close proximity of these contaminants to adjacent sites, and the potential future development of the Property, which if uncontrolled could result in the mobilization of contaminants.

SIC evaluated alternatives and proposed a source control action to eliminate any potential for surface contamination to become a pathway from Property to the River. SIC's source control alternatives analysis was attached to the April 4, 2012, Addendum to the FSCE Report.

After reviewing the alternatives, DEQ has selected Cap-in-Place and Institutional Controls as the most appropriate source control measure.

8.1 Source Control Objective

The objective of the source control action at the Doane Lake Property is to prevent COIs, namely PCBs, bis(2-ethylhexyl)phthalate, and metals to become entrained in windblown dust and potentially migrate off the Property and indirectly reach the River. It is also a goal of the action to grade the site so as to prevent the migration of storm water offsite to the full extent possible.

8.2 Source Control Measures

The source control action includes capping the area shown as the Proposed Soil Cap on Figure 11 and 14 with 12 inches of topsoil. This is generally the area of the Property that was formerly filled with Shredder Residue. Figure 14 provides a conceptual site grading plan. The entire site, with exception of the Doane Lake remnant, will require regrading to continue to facilitate collection and percolation of stormwater on-site, and then the area will be capped with 12 inches of imported topsoil. The topsoil will then be vegetated.

Prior to capping, the parkway, the area between the fence and Northwest Front Avenue, where COIs exceed the EPA Focused In-Water PRGs, will

be excavated and the material relocated to the cap area. The excavation will be performed using visual indicators. Once all visual indications of Shredder Residue are removed, confirmation sampling will be performed to ensure PCBs are below the City of Portland's right-of-way fill policy concentrations (i.e., DEQ's Risk Based Concentrations [RBCs] for residential sites) for soil between the surface and 5 feet bgs, and below DEQ's PCB Construction Worker Risk Based Concentrations (RBC) for deeper soils prior to backfilling. Figure 11 illustrates the proposed excavation and backfill area. A demarcation layer will be installed (e.g., green netting) on graded materials prior to placing topsoil soil.

The proposed area to be capped is approximately 76,000 square feet. The excavation area in the parkway is approximately 13,000 square feet. Assuming the excavation depth in the parkway is 5 feet, this alternative would require approximately 3,200 cubic yards of topsoil for the cap and 2,400 cubic yards to backfill the excavated area.

To ensure consistency of the cap depth and promote stormwater management (retention and infiltration), as shown in Figure 14, the majority of the site, with the exception of the Doane Lake remnant, will be graded and Shredder Residue consolidated into a designated area or areas prior to capping. In the course of re-grading the portions of the site that will not be capped, if large debris is encountered, or if soil/debris are encountered that appear to be potential sources of contamination, they will either be profiled and disposed of offsite or profiled and, with DEQ's approval, left in place or consolidated under the cap as appropriate.

Stormwater management berms or swales will be constructed along the eastern (Front Avenue), northern (NL/Gould) property lines and between the SIC/Air Liquide leasehold. The soil cap will be seeded with a native grass mix to stabilize the soil and prevent wind and stormwater erosion.

SIC will perform post source control implementation monitoring. The cap will be monitored at least monthly until the vegetation becomes established. Annual inspections will be performed and documented for a period of 5 years and then performed and documented each 5 years thereafter. Stormwater visual monitoring during rain events will be performed to evaluate whether surface from the Doane Lake Remnant is flowing onto the NL/Gould property. If such flow is observed, SIC will sample the run-off pursuant to a DEQ-approved sampling plan.

SIC will execute an Easement and Equitable Servitude (E&ES) that contains a soil and cap management plan imposing conditions on any activities that could impact the cap (e.g., any construction). The E&ES will be recorded to prevent current and future owners from compromising the cap's integrity and potentially exposing the Shredder Residue.

DEQ included a copy of the proposed Soil and Cap Management Plan (SCMP) proposed by SIC. The Soil and Cap Management Plan will be referenced in the Easement and Equitable Servitude (EES) for the Property, which will be recorded in the real property record for Multnomah County. The SCMP imposes affirmative obligations and restrictions on the "SCMP Area" and the "Cap Area" as defined in the plan. The Cap and Soil Management Plan is provided in Appendix D.

The source control measures will be implemented following EPA's comments on this draft Source Control Decision and a public comment period.

Section 8

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TABLES

TABLE 1
Summary of Soil Analytical Testing - Leachable Metals
MMGL Corp. Doane Lake Property

Location ID	Sample ID	Sample Date	Laboratory Analytical Testing Results (mg/L) Leachable Metals (EPA 1310)							
			Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
Reference Levels:										
No Comparable Values[1]-->										
August 30, 1990 ICF Kaiser Engineers, Inc. "Fluff Pile"										
-	1	16-Aug-90	0.1 U	8.	0.6	0.1 U	34.	0.01 U	0.1 U	0.1 U
-	2	16-Aug-90	0.1 U	6.	0.2	0.1 U	7.6	0.01 U	0.1 U	0.1 U
-	3	16-Aug-90	0.1 U	9.	0.5	0.1 U	6.3	0.01 U	0.1 U	0.1 U
-	4	16-Aug-90	0.1 U	11.	0.88	0.1 U	38.	0.01 U	0.1 U	0.1 U
-	5	16-Aug-90	0.1 U	11.	0.4	0.1 U	71.	0.01 U	0.1 U	0.1 U
-	6	16-Aug-90	0.1 U	14.	2.	0.1 U	41.	0.01 U	0.1 U	0.1 U
-	7	16-Aug-90	0.1 U	11.	0.8	0.1 U	72.	0.01 U	0.1 U	0.1 U
-	8	16-Aug-90	0.1 U	12.	0.3	0.1 U	73.	0.01 U	0.1 U	0.1 U
-	9	16-Aug-90	0.1 U	11.	0.8	0.1 U	61.	0.01 U	0.1 U	0.1 U
-	10	16-Aug-90	0.1 U	8.	0.3	0.1 U	39.	0.01 U	0.1 U	0.1 U
May 1995 EG&G Environmental Sampling Event										
-	1	May-95	0.25 U	3.39	0.358	0.1 U	14.6	0.01 U	0.25 U	0.1 U
-	2	May-95	0.25 U	2.83	0.117	0.1 U	2.11	0.01 U	0.25 U	0.1 U
-	3	May-95	0.25 U	3.87	0.244	0.1 U	9.15	0.01 U	0.25 U	0.1 U
-	4	May-95	0.25 U	3.61	0.681	0.1 U	13.8	0.01 U	0.25 U	0.1 U
-	5	May-95	0.25 U	3.54	0.492	0.1 U	13.5	0.01 U	0.25 U	0.1 U
-	22 (5 dup)	May-95	0.25 U	3.38	0.553	0.1 U	26.2	0.01 U	0.25 U	0.1 U
-	6	May-95	0.25 U	1.38	0.56	0.1 U	24.4	0.01 U	0.25 U	0.1 U
-	21 (6 dup)	May-95	0.25 U	1.61	0.633	0.1 U	12.4	0.01 U	0.25 U	0.1 U
-	7	May-95	0.25 U	2.6	0.564	0.1 U	34.8	0.01 U	0.25 U	0.1 U
-	8	May-95	0.25 U	3.16	0.745	0.1 U	33.8	0.01 U	0.25 U	0.1 U
-	9	May-95	0.25 U	2.4	0.279	0.1 U	5.04	0.01 U	0.25 U	0.1 U
-	10	May-95	0.25 U	1.82	0.317	0.1 U	39.7	0.01 U	0.25 U	0.1 U
-	11	May-95	0.25 U	4.2	0.737	0.1 U	45.8	0.01 U	0.25 U	0.1 U
-	12	May-95	0.25 U	2.89	0.318	0.1 U	20.3	0.01 U	0.25 U	0.1 U
-	13	May-95	0.25 U	2.89	0.682	0.1 U	16.8	0.01 U	0.25 U	0.1 U
-	14	May-95	0.25 U	2.18	0.516	0.1 U	51.1	0.01 U	0.25 U	0.1 U
-	15	May-95	0.25 U	2.67	0.28	0.1 U	4.67	0.01 U	0.25 U	0.1 U
-	16	May-95	0.25 U	1.92	0.249	0.1 U	3.76	0.01 U	0.25 U	0.1 U
-	17	May-95	0.25 U	1.92	0.323	0.1 U	2.14	0.01 U	0.25 U	0.1 U
-	18	May-95	0.25 U	1.66	0.1 U	0.1 U	1.66	0.01 U	0.25 U	0.1 U
-	19	May-95	0.25 U	3.11	0.605	0.1 U	14.8	0.01 U	0.25 U	0.1 U
-	20	May-95	0.25 U	1.36	0.22	0.1 U	21.5	0.01 U	0.25 U	0.1 U
-	25	May-95	0.25 U	1. U	0.1 U	0.1 U	0.13	0.01 U	0.25 U	0.1 U
-	27	May-95	0.25 U	2.22	0.696	0.1 U	64.2	0.01 U	0.26	0.1 U
-	28	May-95	0.25 U	1.84	1.52	0.1 U	17.9	0.01 U	0.25 U	0.1 U
-	30	May-95	0.25 U	1.44	0.322	0.1 U	22.5	0.01 U	0.25 U	0.1 U
-	31	May-95	0.25 U	2.69	0.945	0.1 U	25.6	0.01 U	0.27	0.1 U
-	32	May-95	0.25 U	2.06	0.84	0.1 U	11.8	0.01 U	0.27	0.1 U
-	33	May-95	0.25 U	1.41	0.112	0.1 U	1.3	0.01 U	0.25 U	0.1 U
-	34	May-95	0.25 U	2.56	0.104	0.1 U	9.42	0.01 U	0.25 U	0.1 U
-	35	May-95	0.25 U	4.68	0.331	0.1 U	2.21	0.01 U	0.25 U	0.1 U
-	36	May-95	0.25 U	3.13	0.1 U	0.1 U	0.38	0.01 U	0.28	0.1 U
-	42 (36 dup)	May-95	0.25 U	2.62	0.1 U	0.1 U	0.29	0.01 U	0.25 U	0.1 U
-	37	May-95	0.25 U	3.42	0.1 U	0.1 U	1.14	0.01 U	0.25 U	0.1 U
-	38	May-95	0.25 U	2.85	0.1 U	0.1 U	1.18	0.01 U	0.25 U	0.1 U
-	39	May-95	0.25 U	1.87	0.4	0.1 U	23.2	0.01 U	0.25 U	0.1 U
-	40	May-95	0.25 U	2.07	0.765	0.1 U	11.	0.01 U	0.25 U	0.1 U
	41 (lime sludge)[2]	May-95	ND[3]	6.06	ND[3]	2.6	ND[3]	ND[3]	ND[3]	ND[3]
-	99	May-95	0.25 U	2.46	0.461	0.1 U	67.6	0.01 U	0.25 U	0.1 U

Notes:

[1] Oregon DEQ Joint Source Control Strategy JSCS values are total recoverable (mg/kg) concentrations and therefore are not comparable to leachable metals results presented in this table.

[2] Lime sludge results are reported as total concentrations.

[3] Non-Detect, reporting limits were not provided.

na = not analyzed
DEQ = Department of Environmental Quality
EPA = U.S. Environmental Protection Agency
mg/kg = milligrams per kilogram
mg/L = milligrams per liter
U = not detected above laboratory reporting limit, indicated where available

TABLE 2
Summary of Soil Analytical Testing - Polychlorinated Biphenyl's
MMGL Corp. Doane Lake Property

Location ID	Sample ID	Sample Date	Laboratory Analytical Testing Results (mg/kg) Polychlorinated Biphenyls Aroclor 1016	1221	1232	1242	1248	1254	1260	1262	1268	Total Aroclor
Reference Levels:												
Oregon DEQ PH JSCS SLV[1] -->			0.53	NV	NV	NV	1.5	0.3	0.2	NV	NV	0.00039
			-	-	-	-	-	-	-	-	-	
August 30, 1990 ICF Kaiser Engineers, Inc. "Old Fluff Pile"[2]												
-	1	16-Aug-90				det		det		det		41.
-	2	16-Aug-90				det		det		det		33.
-	3	16-Aug-90				det		det		det		31.
-	4	16-Aug-90				det		det		det		41.
-	5	16-Aug-90						det				68.
-	6	16-Aug-90				det		det	det			63.
-	7	16-Aug-90				det		det		det		27.
-	8	16-Aug-90				det		det		det		35.
-	9	16-Aug-90						det		det		110.
-	10	16-Aug-90				det		det			det	38.
May 1995 EG&G Environmental Sampling Event[2]												
-	1	May-95				3.		16.	U	5.		23.
-	2	May-95				3.		28.	U	11.		43.
-	3	May-95				4.		28.	U	19.		51.
-	4	May-95				10.		20.	U	6.		36.
-	5	May-95				13.		38.	U	1.		52.
-	22 (5 dup)	May-95				18.		20.	U	U		55.
-	6	May-95				12.		29.	11.	U		51.
-	21 (6 dup)	May-95				6.		80.	21.	U		107.
-	7	May-95				37.		25.	U	11.		73.
-	8	May-95				18.		17.	U	13.		47.
-	9	May-95				2.		36.	10.	U		48.
-	10	May-95				5.		25.	11.	U		41.
-	11	May-95				98.		8.	14.	U		120.
-	12	May-95				24.		9.	U	16.		49.
-	13	May-95				5.		12.	15.	U		32.
-	14	May-95				5.		36.	21.	U		63.
-	15	May-95				23.		23.	9.	U		55.
-	16	May-95				13.		15.	U	12.		40.
-	17	May-95				U		42.	10.	U		52.
-	18	May-95				2.		23.	10.	U		34.
-	19	May-95				30.		32.	9.	U		72.
-	20	May-95				11.		11.	22.	U		45.
-	25	May-95				0.019		0.038	0.032	U		0.08
-	27	May-95				U		62.	12.	U		73.
-	28	May-95				6.		11.	U	9.		25.
-	30	May-95				10.		20.	6.	U		37.
-	31	May-95				65.		55.	14.	U		130.
-	32	May-95				21.		14.	7.	U		43.
-	33	May-95				2.		24.	10.	U		36.
-	34	May-95				20.		18.	U	9.		48.
-	35	May-95				29.		19.	U	13.		60.
-	36	May-95				27.		5.	11.	U		43.
-	42 (36 dup)	May-95				34.		11.	12.	U		57.
-	37	May-95				27.		24.	10.	U		61.
-	38	May-95				37.		132.	26.	U		190.
-	39	May-95				1.		9.	6.	U		16.
-	40	May-95				31.		10.	10.	U		52.
-	99	May-95				3.		11.	U	11.		56.

Note:

[1] Oregon DEQ Joint Source Control Strategy (JSCS) - Table 3-1, 07/16/07 Revision

[2] To determine whether the PCBs exceeded the 50 mg/kg TSCA criteria, EG&G Environmental applied a statistical “cut-off value” method as explained in Sampling Guidance for Scrap Metal Shredders—Field Manual (USEPA, 1993, Report No. EPA-747-R-93-009). Based on that analysis, although the average concentration of PCBs in the fluff was 56 mg/kg, the 50 mg/kg regulatory level was adjusted pursuant to that guidance to a 59 mg/kg “cut-off value.” Hence, the fluff, if removed for disposal, would not be considered to be a PCB remediation waste.

det = detected
DEQ = Department of Environmental Quality
EPA = U.S. Environmental Protection Agency
mg/kg = milligrams per kilogram
U = not detected above laboratory reporting limit, indicated where available

TABLE 3

Summary of Groundwater Analytical Testing - Dissolved Metals

MMGL Corp. Doane Lake Property

Monitoring Well	Property	Date	Laboratory Analytical Testing Results – Dissolved Metals – ug/L													
			Aluminum	Antimony	Arsenic	Cadmium	Chromium	Cobalt	Copper	Lead	Manganese	Mercury	Nickel	Selenium	Silver	Zinc
Reference Levels:																
	Oregon DEQ PH JSCS SLV[1] -->		200	6	0.045	0.094	100	NV	2.7	0.54	50	0.77	16	5	0.12	36
March 2000 RP Data Set																
W-04-S(16)	Gould	Mar-00														
W-04-I (49)	Gould	Mar-00														
W-04-89	Gould	Mar-00														
W-15-S(23)	Metro	Mar-00														
W-15-I(38)	Metro	Mar-00														
W-15-D(62)	Metro	Mar-00														
W-16-31	SIC	Mar-00														
W-16-I(50)	SIC	Mar-00														
W-16-D(85)	SIC	Mar-00														
August 2006 RP Data Set																
W-16-31	SIC	08/17/06	**94**		**22**		2.3 U			1.7 U	**1710**	0.20 U	**2.1**			
W-16-D(85)	SIC	08/17/06	**198**		5.6 U		2.3 U			1.7 U	**458**	0.20 U	13 U			
W-16-I(50)	SIC	08/17/06	54 U		**44**		2.3 U			1.7 U	**6540**	0.20 U	**3.7**			
W-16-S(13)	SIC	08/17/06	54 U		56 U		2.3 U			1.7 U	**5.8**	**0.26**	**28**			
June 2009 RP Data Set																
W-04-I(49)	Gould	6/5/2003														
W-04-89	Gould	6/5/2009														
W-04-S(16)	Gould	6/5/2009	100 U	0.40 U	**3.0**	0.30 U	0.10 U	0.20 U	0.090 UJ	0.070 J	**91**	0.020 U	0.60 J	0.90 J	0.080 U	**7.0**
W-04-49	Gould	9/20/2007	**2.0**	0.14 U	2.0 J	**0.12**	2.0 U	3.0 U	7.0 J	0.020 U	**18900**	0.030 U	2.0 J	4.0 J	0.019 U	12 J
W-04-89	Gould	9/20/2007	2.0 J	0.040 U	**7.0**	0.036 U	0.32 U	1.0 U	0.27 U	0.017 U	**864**	0.030 U	6.0 J	0.50 J	0.050 U	2.0 J
W-15-D(62)	Metro	6/18/2009	50 U	0.40 U	**6.0**	0.30 U	0.10 U	**7.0**	0.090 U	0.070 U	515 J	0.020 U	**11**	**18**	0.20 J	0.90 U
W-15-I(38)	Metro	6/18/2009	**50**	0.40 U	**28**	0.30 U	0.10 U	0.30 J	1.0 J	0.070 U	2980 J	0.020 U	**1.0**	0.80 J	0.10 U	0.90 U
W-15-S(23)	Metro	7/1/2009														
W-16-31	SIC	6/9/2009	50 U	0.40 U	77 J	0.30 U	**1.0**	0.90 J	0.30 J	0.20 J	**352**	0.020 U	**7.0**	177 J	0.10 U	0.90 U
W-16-D(85)	SIC	6/9/2009	50 U	0.40 U	**2.0**	0.30 U	0.10 U	0.20 J	0.090 U	0.070 U	**469**	0.020 U	**7.0**	0.60 U	0.10 U	2.0 J
W-16-I(50)	SIC	6/9/2009	50 U	0.40 U	**47**	0.30 U	0.80 J	0.10 J	0.090 U	0.070 U	**6610**	0.020 U	12 J	0.60 U	0.10 U	0.90 U
W-16-S(13)	SIC	6/9/2009	50 U	0.40 U	**2.0**	0.30 U	0.1 U	0.90 J	0.60 J	0.070 U	0 U	0.200 U	**33**	0.60 U	0.10 U	3.0 J
August 2009/2010 Arkema Data Set																
W-04-I(49)	Arkema	8/17/2009														
W-04-89	Arkema	8/17/2009														
MWA-12i(d)	Arkema	1/5/2010	8 J	0.33 U	**92.0**	0.10 U	2.0 J	0.78 J	0.30 J	0.2 U	**10400**	0.020 U	**13.0**	4.00 J	0.10 U	**5.0**
MWA-72	Arkema	8/17/2009			7.2 J											
MWA-73	Arkema	1/5/2010	14 J	0.33 U	**10** J	**0.1** U	0.76 U	**1**	0.42 J	0.51 J	**7080**	0.02 U	8 J	4 UJ	0.1 U	**9**
MWA-75I	Arkema	8/14/2009			19 J											
MWA-75I	Arkema	8/14/2009			18 J											
MWA-77G	Arkema	8/17/2009			5.9 J											
January 2010 RP Data Set																
W-04-I(49)	RP	1/2/2010														
W-04-89	RP	1/5/2010														
MWA-72	RP	1/5/2010	30 J	0.30 U	8.0 J	0.10 U	0.10 U	**2.0**	**6.0**	0.51 J	1540	0.022 J	**4.0**	5.00 J	0.10 U	**4.0**

Notes:

[1] Oregon DEQ Joint Source Control Strategy (JSCS) - Table 3-1, 07/16/07 Revision

ug/L = micrograms per liter

Blank cell = not tested

NV = no value established for this compound

U = not detected above laboratory reporting limit, indicated where available

Bold = detected

TABLE 4

Summary of Groundwater Analytical Testing - Total Metals

MMGL Corp. Doane Lake Property

Monitoring Well	Property	Date	Laboratory Analytical Testing Results – Total Metals – ug/L: Aluminum	Antimony	Arsenic	Cadmium	Chromium	Copper	Lead	Manganese	Mercury	Nickel	Selenium	Silver	Zinc
Reference Levels:															
	Oregon DEQ PH JSCS SLV[1] -->		200	6	0.045	0.094	100	2.7	0.54	50	0.77	16	5	0.12	36
March 2000 RP Data Set															
W-04-S(16)	Gould	Mar-00													
W-04-I	Gould	Mar-00													
W-04-89	Gould	Mar-00													
W-15-S(23)	Metro	Mar-00													
W-15-I(38)	Metro	Mar-00													
W-15-D(62)	Metro	Mar-00													
W-16-31	SIC	Mar-00													
W-16-I(50)	SIC	Mar-00													
W-16-D(85)	SIC	Mar-00													
August 2006 RP Data Set															
W-16-31/T	SIC	08/17/06	**330**		**22**		**2.0**		**4.5**	**2000**	0.20 U	**3.9**			
W-16-D(85)/T	SIC	08/17/06	54 U		5.6 U		2.3 U		1.7 U	**453**	0.20 U	13 U			
W-16-I(50)/T	SIC	08/17/06	54 U		**41**		2.3 U		1.7 U	**6450**	0.20 U	5.0			
W-16-S(13)T	SIC	08/17/06	54 U		56 U		2.3 U		1.7 U	**18**	**0.29**	**29**			
June 2009 RP Data Set															
W-04-I(49)															
W-04-89															
W-04-S(16)	Gould	6/5/2009	100 U	0.40 U	**3.0**	0.20 U	0.80 J	0.50 U	0.20 J	**90**	0.020 U	0.5 J	0.90 J	0.080 U	**7.0**
W-15-D(62)	Metro	6/18/2009	100 U	0.40 U	**6.0**	0.20 U	0.60 U	0.20 J	0.60 U	**485**	0.020 U	**10**	**19**	0.080 U	**4.0**
W-15-I(38)	Metro	6/18/2009	100 U	0.40 U	**28**	0.20 U	0.60 U	2.0 J	0.40 U	**4320**	0.020 U	**1.0**	0.90 J	0.080 U	**12**
W-15-S(23)	Metro	6/18/2009													
W-16-31	SIC	6/9/2009	100 U	0.40 U	52 J	0.20 U	1.0 U	0.70 J	0.20 J	**394**	0.020 U	**6.0**	**149**	0.080 U	0.40 U
W-16-D(85)	SIC	6/9/2009	100 U	0.40 U	**2.0**	0.20 U	0.40 U	0.20 J	0.20 J	**501**	0.020 U	**9.0**	1.00 U	0.080 U	3.0 U
W-16-I(50)	SIC	6/9/2009	100 U	0.40 U	**47**	0.20 U	0.90 U	0.10 J	0.10 U	**6490**	0.020 U	7.0 J	0.60 U	0.080 U	5.0 U
W-16-S(13)	SIC	6/9/2009	100 U	**3.0**	**2.0**	0.20 U	0.90 J	1.0 J	**80**	0.40 U	0.090 J	**34**	**2.00**	0.080 U	**6.0**
January 2010 RP Data Set															
W-04-I(49)															
W-04-89															
MWA-12i(d)	Arkema	1/5/2010	**122**	0.30 U		0.10 U	1.00 U	0.30 U	0.20 U	**10700**	0.020 U		8.00 J	0.10 U	4.0 U
MWA-72	Arkema	1/5/2010	**428**	0.30 U		0.10 U	2.0 J	**10**	0.89 U	**1520**	0.020 J		4.0 J	0.10 U	7.0 U
MWA-73	Arkema	1/5/2010	**51**	0.30 U		0.10 U	0.69 U	0.30 U	0.20 U	**1580**	0.020 U		4.0 U	0.10 U	7.0 U

Notes:

[1] Oregon DEQ Joint Source Control Strategy (JSCS) - Table 3-1, 07/16/07 Revision

ug/L = micrograms per liter

Blank cell = not tested

NV = no value established for this compound

U = not detected above laboratory reporting limit, indicated where available

Bold = detected

TABLE 5
Summary of Groundwater Analytical Testing - Volatile Organic Compounds
MMGL Corp. Doane Lake Property

Location ID	Property	Sample ID	Sample Date	Laboratory Analytical Testing Results Volatile Organic Compounds (ug/l)				
				Benzene	Ethylbenzene	Toluene	m,p-Xylene	o-Xylene
Reference Levels:								
			Oregon DEQ PH JSCS SLV[1, 2]	1.2	7.3	9.8	1.8	200
Schnitzer and Neighboring Property Wells								
W-04-I(49)	NL/Gould	not sampled for these COIs -->						
W-04-89	NL/Gould	not sampled for these COIs -->						
W-04-S(16)	NL/Gould	1761-01	6/5/2009	0.35	0.05 U	0.143 U	0.131 U	0.13 U
W-15-D(62)	Metro	1800-01	6/18/2009	0.66	0.1 U	0.286 U	0.262 U	0.26 U
W-15-I(38)	Metro	1801-01	6/18/2009	0.094 U	0.05 U	0.18 J	0.131 U	0.13 U
W-15-S(23)	Metro	not sampled for these COIs -->						
W-16-31	SIC	1776-01	6/9/2009	4.58	0.22 J	1.09	1.1	1.42
W-16-D(85)	SIC	1774-01	6/9/2009	0.094 U	0.05 U	0.27 U	0.131 U	0.13 U
W-16-I(50)	SIC	1773-01	6/9/2009	0.094 U	0.05 U	0.19 U	0.131 U	0.13 U
W-16-S(13)	SIC	1775-01	6/9/2009	4.16	1.3	5.08	5.14	2.06
August 2009 Arkema Data Set								
MWA-72	Arkema	MWA-72-081719	8/17/2009	0.33 J	0.26 J	1.94	1.06	0.39 J
MWA-75I	Arkema	MWA-75I-081719	8/17/2009	0.09 U	0.06 U	0.11 U	0.21 U	0.07 U
MWA-77G	Arkema	MWA-77G-081719	8/17/2009	0.31 J	0.13 J	1.51 J	0.46 J	0.11 J
January 2010 RP Data Set								
MWA-72	Arkema		1/5/2010	0.125 U	0.25 U	0.25 U	0.5 U	0.25 U

Notes:

[1] Oregon DEQ Joint Source Control Strategy (JSCS)
Table 3-1 (07/16/07 Revision) Screening Level Value (SLV)

[2] BTEX are the only COIs and therefore only VOCs shown and screened against SLVs

COI = Constituent of Interest
DEQ = Department of Environmental Quality
EPA = U.S. Environmental Protection Agency
J = estimated concentration
mg/L = milligrams per liter
NV = no value established for this compound
U = not detected above laboratory reporting limit, indicated where available
ug/L = micrograms per liter

Table 6
Summary of Groundwater Analytical Testing - Total PCB Congeners
MMGL Corp. Doane Lake

Monitoring Well	Well Location	Groundwater Zone	Sample Date	Total PCB Congeners (pg/L)[2]
MW-05-24	Gould	Fill/Shallow	05/29/2009	37824
MW-05-34	Gould	Intermediate/Alluvium	05/29/2009	27311
MW-05-52	Gould	Intermediate/Alluvium	05/29/2009	21072
MW-05-70	Gould	Deep/Basalt	05/29/2009	479
MW-09-23	Metro	Fill/Shallow	05/28/2009	1790
MW-09-42	Metro	Intermediate/Alluvium	05/28/2009	1727
MW-09-58	Metro	Intermediate/Alluvium	05/28/2009	39
MW-09-80	Metro	Deep/Basalt	05/28/2009	30
MW-09-80	Metro	Deep/Basalt	05/28/2009	18
W-04-S(16)	Gould	Fill/Shallow	06/05/2009	785
W-11-S(21)	ESCO	Fill/Shallow	06/08/2009	3986
W-15-S(23)	Metro	Intermediate/Alluvium	07/08/2009	28695
W-16-31	SIC/AL	Intermediate/Alluvium	06/09/2009	124
W-16-S(13)	SIC/AL	Fill/Shallow	06/09/2009	10328
MWA-72[3]	ARKEMA	Fill/Shallow	01/05/2010	431
			Portland Harbor JSCS SLV[1]	**64**

Notes:

[1] Oregon DEQ Joint Source Control Strategy JSCS) Table 3-1 07/16/07 Revision Screening Level Value (SLV)

[2] Summation of congeners includes all detections above the MRL and estimated values (J values) below the MRL.

[3] Rhone Poulenc calculated 446 pg/L for a total sumation of congeners. The reason for a difference in values could not be identified

Sources:

AMEC Earth & Environmental, 2009 Groundwater Monitoring Event, Rhone-Poulenc – Portland Site, October 2009
AMEC Earth & Environmental, 2010 RI/SCE Report, Rhone-Poulenc – Portland Site, November 2010
ERM, August 2009 Sitewide Groundwater Monitoring, Arkema, Inc. Facility - Portland, Oregon, February 2010
pg/L = picograms per liter

Table 7
Potential SIC COIs Screening Table
MMGL Corp. Doane Lake Property

Potential COI (Constituent Present in Soil, Groundwater, or Materials at Property)	Potential Media/Source	Focus of RP Investigation	Present Above JSCS[1] on Property or Down-gradient at Onset of FSCE?	Detection Attributed to Natural Occurring Deposits?	COI Considered in Pathway Evaluation?	Potential Pathway	Constituent Requires Source Control Evaluation by SIC
Soil							
TPH	SR/fill	No	NV	No	No	No	No
PCBs	SR	Yes	Yes	No	Yes	WE to SW	**Yes**
Antimony	Slag	No	U	No	Yes	No	No
Barium	SR, Slag	No	L	No	Yes	WE to SW	**Yes**
Cadmium[2]	SR, Slag	No	L	No	Yes	WE to SW	**Yes**
Chromium	SR, Slag	No	U	No	Yes	WE to SW	**Yes**
Copper	SR	No	U	No	Yes	WE to SW	**Yes**
Lead[2]	SR	No	L	No	Yes	WE to SW	**Yes**
Iron	SR, Slag	No	NV	Yes	No	n/a	No
Manganese	SR, Slag	U	U	Yes	Yes	No	No
Mercury	SR	No	U	Yes	Yes	WE to SW	**Yes**
Molybdenum	Slag	No	NV	No	No	n/a	No
Selenium	Slag	No	U	L	Yes	No	**Yes**
Silver	Slag	No	U	U	Yes	No	**Yes**
Thallium	Slag	No	NV	U	No	n/a	No
Tin	Slag	No	NV	U	No	n/a	No
Vanadium	Slag	No	NV	U	No	n/a	No
Zinc	SR, Slag	No	U	U	Yes	WE to SW	**Yes**
BTEX (benzene, ethylebenzene, toluent, xylene)	SR	Yes	U	No	No	n/a	No
Bis(2-ethylhexyl)phthalate	SR	Yes	U	No	Yes	WE to SW	**Yes**
Groundwater							
TPH	SR/fill	No	NV	No	No	No	No
PCBs	SR	Yes	Yes	No	Yes	No	No
Aluminum	Unknown	No	Yes	U	No	No	No
Antimony	Slag	No	No	No	No	No	No
Barium	Slag	No	No	No	No	No	No
Cadmium[2]	SR, Slag	No	No	No	No	No	No
Chromium	SR, Slag	No	No	No	No	No	No
Copper	SR	No	Yes	No	No	No	No
Lead[2]	SR	No	Yes	No	No	No	No
Iron	SR, Slag	No	NV	Yes	No	No	No
Manganese (dissolved & total)	SR, Slag	No	Yes	Yes	No	No	No
Mercury (total)	SR	No	No	Yes	No	No	No
Molybdenum	Slag	No	NV	No	No	No	No
Nickel	Unknown	No	Yes	U	No	No	No
Selenium	Slag	No	Yes	L	No	No	No
Silver	Slag	No	No	U	No	No	No
Thallium	Slag	No	NV	U	No	No	No
Tin	Slag	No	NV	U	No	No	No
Vanadium	Slag	No	NV	U	No	No	No
Zinc	Slag	No	No	No	No	No	No
BTEX (benzene, ethylebenzene, toluent, xylene)	SR	Yes	Yes	No	No	No	No
Bis(2-ethylhexyl)phthalate	SR	No	No	No	No	No	No

Notes:
[1] JSCS Table 3-1 Screening Level Values, 10/16/07 revision

[2] Metals were analyzed by TCLP. Based on TCLP results, it is estimated the metals concentrations would likely exceed the soil screening values.

Bold = constituent requires source control
FSCE – Focused Source Control Evaluation
U - Unknown, media had not been analyzed for constituent
L - Likely
P - Potentially
WE to SW - Wind Erosion to Stormwater
SW - Stormwater
GW - Groundwater
NV - No Value
n/a - Not applicable to pathway evaluation because constituent screened out earlier in process for not have a JSCS SLV or it is naturally occuring
RP - Rhone-Poulenc

Table 8

Analytical Test Methods - Source Control Investigation

MMGL Corp. Doane Lake Property

Constituent	**EPA Method**
Polychlorinated biphenyls (PCBs)	8082A (low detection limits)
Bis(2-ethylhexyl)phthalate	8270D SIM
Total Metals (antimony, barium, cadmium, chromium, copper, lead, manganese, mercury, selenium, silver, and zinc)	6020 (ICPMS)

Table 9

Soil Observations - Source Control Investigation

MMGL Corp. Doane Lake Property

Location	Sample Date	Soil Sample
DLS-001	20-Jan-12	Coarse-grained fill - gravel with silt. Medium brown. No visible SR, odor or discoloration
DLS-002	20-Jan-12	Coarse-grained fill - gravelly silt. Medium brown. No visible SR, odor or discoloration
DLS-003	20-Jan-12	Coarse-grained fill - gravelly silt. Medium brown. No visible SR, odor, or discoloration
DLS-004	20-Jan-12	Coarse-grained fill - gravelly silt. Medium to dark brown. Very fine SR fragments. No odor.
DLS-005	17-Jan-12	Fine-grained fill - silt with organics, no plasticity. Dark brown.
DLS-006	17-Jan-12	Fine-grained fill - silt with organics, no plasticity. Dark brown.
DLS-007	20-Jan-12	Fine-grained fill - clay with sand/gravels, light plasticity. Medium to dark brown. Adjacent to construction debris. No odor.
DLS-008	20-Jan-12	Highly organic peaty fill. Dark brown. Very fine SR fragments. No odor.
DLS-009	20-Jan-12	Highly organic sandy peat fill. Medium to dark brown. SR fragments
DLS-010	20-Jan-12	Coarse-grained fill - silty sand. Medium brown. SR fragments adjacent to sample location.
DLS-011	20-Jan-12	Coarse-grained fill - silty sand. Medium brown. SR fragments adjacent to sample location.
DLS-012	20-Jan-12	Coarse-grained fill - sandy organics and woody debris. Light to Medium brown. No visible SR or odor.
DLS-013	20-Jan-12	Fine-grained fill - plasticity clay with organics. Light brown. No visible SR, odor, or discoloration.
DLS-014	7-Feb-12	Fine-grained fill - silt with slight plasticity and organics. Dark brown. No visible SR, odor, or discoloration.
DLS-015	7-Feb-12	Coarse-grained fill - sandy silt with gravel. Medium brown. No visible SR, odor, or discoloration.
DLS-016	7-Feb-12	Fine-grained fill - sandy silt with organics and gravel. Dark brown. Fine SR fragments.
DLS-016-D	7-Feb-12	Fine-grained fill - sandy silt with organics and gravel. Dark brown. Fine SR Fragments. Fine SR fragments.
DLS-020	20-Feb-12	Fine-grained fill - clayey silt with plasticity and some organics. Light to medium brown. No visible SR or odor.

SR = Shredder Residue

TABLE 10

Summary of Soil Analytical Testing - Total Metals, Source Control Investigation

MMGL Corp. Doane Lake Property

Location ID	Sample ID	Sample Date	Laboratory Analytical Testing Results Total Metals (EPA 6010C unless noted) (mg/kg) Antimony	Barium	Cadmium	Chromium	Copper	Lead	Manganese	Mercury (6020 ICPMS)	Selenium	Silver	Zinc
Reference Levels:													
Oregon DEQ JSCS SLV[1,2]													
Toxicity (MacDonald PECs and other SQVs) (**Total Concentration**)			64.	-	4.98	111.	149.	128.	1,100.	1.06	5.	5.	459.
DEQ 2007 Bioaccumulative Sediment SLVs **(Total Concentration)**			-	-	1.	-	-	17.		0.07	2.	-	-
EPA Focused PRGs for LWG FS[2,3]			-	-	3.51	90.	562.	91.3	-	0.41	-	1.72	315.
10Xs EPA Focused In-Water PRGs for LWG FS ***OR*** JSCS If No PRG			640.	-	35.1	900.	5,620.	913.	11,000.	4.1	20.	17.2	3,150.
Oregon Background Concentrations (95th percentile)[4]			1.	1,000.	2.	168.9	100.7	22.	2,410.	5	365.8	2.	150.
January 2012 Surface Soil Sampling Event													
1	DLS-001-120120	20-Jan-12	1.48 U	**77.1**	1.48 U	**8.46**	**20.2**	**38.2**	**840.**	0.12 U	2.96 U	1.48 U	**744.**
2	DLS-002-120120	20-Jan-12	1.42 U	**133.**	1.42 U	**10.3**	**36.8**	**58.3**	**1,280.**	0.11 U	2.85 U	1.42 U	**4,120.**
3	DLS-003-120120	20-Jan-12	**7.87**	**114.**	**2.31**	**6.89**	**51.1**	**112.**	**696.**	0.1 U	2.39 U	1.19 U	**303.**
4	DLS-004-120120	20-Jan-12	1.24 U	**91.1**	**1.35**	**3.74**	**20.8**	**21.**	**1,090.**	0.1 U	2.47 U	1.24 U	**95.4**
5	DLS-005-120116	16-Jan-12	1.42 U	**56.9**	1.42 U	**4.21**	**13.8**	**6.57**	**619.**	0.11 U	2.84 U	1.42 U	**53.8**
6	DLS-006-120116	16-Jan-12	3.92 U	**179.**	3.92 U	**11.1**	**38.5**	**25.**	**3,400.**	0.31 U	7.84 U	3.92 U	**221.**
7	DLS-007-120120	20-Jan-12	**6.63**	**253.**	**6.48**	**29.2**	**121.**	**342.**	**1,380.**	**0.55**	2.89 U	1.44 U	**1,030.**
8	DLS-008-120120	20-Jan-12	**247.**	**1,760.**	**53.5**	**319.**	**1,400.**	**6,980.**	**1,100.**	**4.44**	3.24 U	**2.66**	**13,000.**
9	DLS-009-120120	20-Jan-12	**27.7**	**1,350.**	**33.3**	**127.**	**1,020.**	**3,020.**	**771.**	**1.79**	3.15 U	1.58 U	**5,580.**
10	DLS-010-120120	20-Jan-12	1.54 U	**186.**	1.54 U	**28.7**	**31.7**	**22.2**	**903.**	0.12 U	3.08 U	1.54 U	**195.**
11	DLS-011-120120	20-Jan-12	**21.1**	**812.**	**30.5**	**107.**	**480.**	**1,300.**	**664.**	**1.31**	2.83 U	1.42 U	**6,180.**
12	DLS-012-120120	20-Jan-12	**14.7**	**344.**	**8.39**	**40.4**	**246.**	**702.**	**555.**	0.31	3.22 U	1.61 U	**1,530.**
13	DLS-013-120120	20-Jan-12	1.45 U	**185.**	1.45 U	**28.4**	**28.1**	**17.5**	**807.**	0.12 U	2.89 U	1.45 U	**77.5**
14	DLS-014-120207	2-Feb-11	1.77 U	-	1.77 U	-	-	**11.**	-	0.14 U	-	-	**91.3**
15	DLS-015-120207	2-Feb-11	1.32 J	-	1.36 U	-	-	**102.**	-	0.17	-	-	**158.**
16	DLS-016-12-2-7	2-Feb-11	**27.2**	-	**10.4**	-	-	**2,310.**	-	**0.77**	-	-	**2,160.**
16-DUP	DLS-016-12-2-7-DUP	2-Feb-11	**14.4**	-	**9.78**	-	-	**756.**	-	**1.11**	-	-	**2,550.**
20	DLS-020-120220	20-Feb-12	1.46 J	-	6.08 U	-	-	**69.7**	-	0.09 J	-	-	**101.**
June 2012 City of Portland Surface Soil Sampling													
SD-A	W12F112-01 (0-6")	14-Jun-12	NT	NT	0.655	NT	38.9	68.2	NT	0.0458	NT	NT	159
SD-A	W12F112-02 (6-12")	14-Jun-12	NT	NT	0.477	NT	34.7	51.4	NT	0.0658	NT	NT	114
SD-B	W12F112-03 (0-6")	14-Jun-12	NT	NT	2.08	NT	73.4	112.	NT	0.118	NT	NT	452
SD-B	W12F112-04 (6-12")	14-Jun-12	NT	NT	1.57	NT	63.	89.5	NT	0.101	NT	NT	336
SD-B	DUP	14-Jun-12	NT	NT	1.36	NT	51.	80.	NT	0.0997	NT	NT	287
SD-C	W12F112-05 (0-6")	14-Jun-12	NT	NT	5.57	NT	301.	291.	NT	0.268	NT	NT	1,960
SD-C	W12112-06 (6-12")	14-Jun-12	NT	NT	17.	NT	387.	**1,320.**	NT	0.735	NT	NT	**3,880**

Notes: [1] Oregon DEQ Joint Source Control Strategy (JSCS), Table 3-1 07/16/07 Revision - MacDonald PEC and "other" Soil Quality Values (SQV's) established by Oregon DEQ

[2] Purpose of this Focused Source Control Evaluation is to evaluate potential pathways to the Willamette River, and therefore these screening levels are conservative values based on those being used in context of evaluating potential in-river risk. They are not based on acceptable risk levels for on-site exposure. Concentrations based on site-based acceptable risk levels would be higher.

[3] USEPA Focused Preliminary Remediation Goals, Letter from EPA to LWG, April 24, 2010

[4] Background concentrations were obtained from GeoEngineers Oregon Background Metals Evaluation Report, Table 5, June 30, 2010.

247 Exceeds 10Xs EPA In-Water PRG SLV

BOLD Constituent detected above Method Report Limit (MRL)

highlighted Method Detection Limit (calculated as 1/2 of MRL) exceeds 10X EPA Focused In-Water PRG or JCSC SLV, which ever is appropriate.

na = not analyzed

DEQ = Department of Environmental Quality

EPA = U.S. Environmental Protection Agency

LWG - Lower Willamette Group

FS = Feasibility Study

mg/kg = milligrams per kilogram

mg/L = milligrams per liter

J - Estimated value. Constituent detected below the method reporting limit but above the method detection limit.

NT - Not tested

NV = no value established for this compound

U = not detected above laboratory reporting limit, indicated where available

TABLE 11
Summary of Soil Analytical Testing - PCBs and Phthalate Esters - Souce Control Investigation
MMGL Corp. Doane Lake Property

Location ID	Sample ID	Sample Date	Laboratory Analytical Testing Results (mg/kg)										
			Polychlorinated Biphenyls (8082A)										Phthalate Esters (ug/kg) (8270D SIM)
			Aroclor										
			1016	1221	1232	1242	1248	1254	1260	1262	1268	Sum of Aroclors[3]	Bis(2-ethylhexyl) phthalate
Reference Levels:													
Oregon DEQ JSCS SLV[1,2]													
Toxicity (MacDonald PECs and other SQVs) -->			0.53	NV	NV	NV	1.5	0.3	0.2	NV	NV	0.676	800.
DEQ 2007 Bioaccumulative Sediment SLV -->			-	-	-	-	-	-	-	-	-	0.00039	330.
EPA Focused PRGs for LWG FS[2,3] -->			-	-	-	-	-	-	-	-	-	0.0295	-
10Xs EPA Focused In-Water PRGs for LWG FS ***OR*** JSCS if No PRG -->			5.3	NV	NV	NV	15.	3.	2.	NV	NV	0.295	3,300.
January 2012 Surface Soil Sampling													
1	DLS-001-120120	20-Jan-12	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	NT U	0.01 U	0.01 U	132. U
2	DLS-002-120120	20-Jan-12	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	**0.06**	**0.03**	NT U	0.01 U	**0.09**	680. U
3	DLS-003-120120	20-Jan-12	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	**0.6**	**0.32**	NT	**0.09**	**1.01**	962. U
4	DLS-004-120120	20-Jan-12	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	**0.11**	**0.05**	NT	**0.03**	**0.19**	118. U
5	DLS-005-120116	16-Jan-12	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	NT	0.01 U	0.01 U	106. U
6	DLS-006-120116	16-Jan-12	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	NT	0.04 U	0.04 U	371. U
7	DLS-007-120120	20-Jan-12	0.07 U	0.07 U	0.07 U	**0.08**	0.07 U	**1.23**	**0.5**	NT	**0.07**	**1.88**	2,370. U
8	DLS-008-120120	20-Jan-12	0.68 U	0.68 U	0.68 U	0.68 U	0.68 U	**18.9**	**9.55**	NT	**1.82**	**30.27**	**23,300.**
9	DLS-009-120120	20-Jan-12	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	**6.47**	**5.39**	NT	**5.31**	**17.17**	**77,500.**
10	DLS-010-120120	20-Jan-12	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	**0.05**	0.01 U	NT	0.01 U	**0.05**	133. U
11	DLS-011-120120	20-Jan-12	0.12 U	0.12 U	0.12 U	**0.55**	0.12 U	**4.37**	**1.58**	NT	**0.31**	**6.8**	**5,300.**
12	DLS-012-120120	20-Jan-12	0.14 U	0.14 U	0.14 U	**0.56**	0.14 U	**2.21**	**0.9**	NT	0.14 U	**3.67**	3,130. U
13	DLS-013-120120	20-Jan-12	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	**0.04**	**0.01**	NT	0.01 U	**0.05**	**137.**
14	DLS-014-120207	2-Feb-11	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	**0.01**	**0.01**	NT	na	**0.02**	**-**
15	DLS-015-120207	2-Feb-11	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	**0.03**	**0.02**	NT	na	**0.05**	**-**
16	DLS-016-12-2-7	2-Feb-11	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	**2.59**	**0.46**	NT	na	**3.05**	**285.**
16-DUP	DLS-016-12-2-7-DUP	2-Feb-11	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	**2.07**	**0.36**	NT	na	**2.43**	**260.**
20	DLS-020-120220	20-Feb-11	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	**0.01** J	0.01 U	NT	na	**0.01** J	**63.9**
June 2012 City of Portland Surface Soil Sampling													
SD-A	W12F112-01 (0-6")	14-Jun-12	0.01 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	**0.01**	0.01 U	0.01 U	**0.01**	NT
SD-A	W12F112-02 (6-12")	14-Jun-12	0.01 U	0.02 U	0.14 U	0.01 U	0.01 U	0.03 U	0.01 U	0.01 U	0.01 U	0.01 U	NT
SD-B	W12F112-03 (0-6")	14-Jun-12	0.01 U	0.02 U	0.01 U	0.01 U	0.01 U	**0.19**	**0.13**	0.01 U	0.01 U	**0.32**	NT
SD-B	W12F112-04 (6-12")	14-Jun-12	0.01 U	0.02 U	0.01 U	0.01 U	0.01 U	**0.33**	**0.15**	0.01 U	0.01 U	**0.48**	NT
SD-B	W12F112-07 (6-12") -DUP	14-Jun-12	0.01 U	0.02 U	0.01 U	0.01 U	0.01 U	**0.26**	**0.14**	0.01 U	0.01 U	**0.4**	NT
SD-C	W12F112-05 (0-6")	14-Jun-12	0.01 U	0.02 U	0.01 U	0.01 U	0.01 U	**0.91** J	**1.42** J	0.01 U	0.01 U	**2.33**	NT
SD-C	W12112-06 (6-12")	14-Jun-12	0.1 U	0.2 U	0.1 U	0.1 U	**5.53**	**12.4**	**3.35**	0.1 U	0.1 U	**21.28**	NT

Notes: [1] Oregon DEQ Joint Source Control Strategy (JSCS), Table 3-1 07/16/07 Revision - MacDonald PEC and "other" Soil Quality Values (SQV's) established by Oregon DEQ

[2] Purpose of this Focused Source Control Evaluation is to evaluate potential pathways to the Willamette River, and therefore these screening levels are conservative values based on those being used in context of evaluating potential in-river risk. They are not based on acceptable risk levels for on-site exposure. Concentrations based on site-based acceptable risk levels would be higher.

[3] USEPA Focused Preliminary Remediation Goals, Letter from EPA to LWG, April 24, 2010

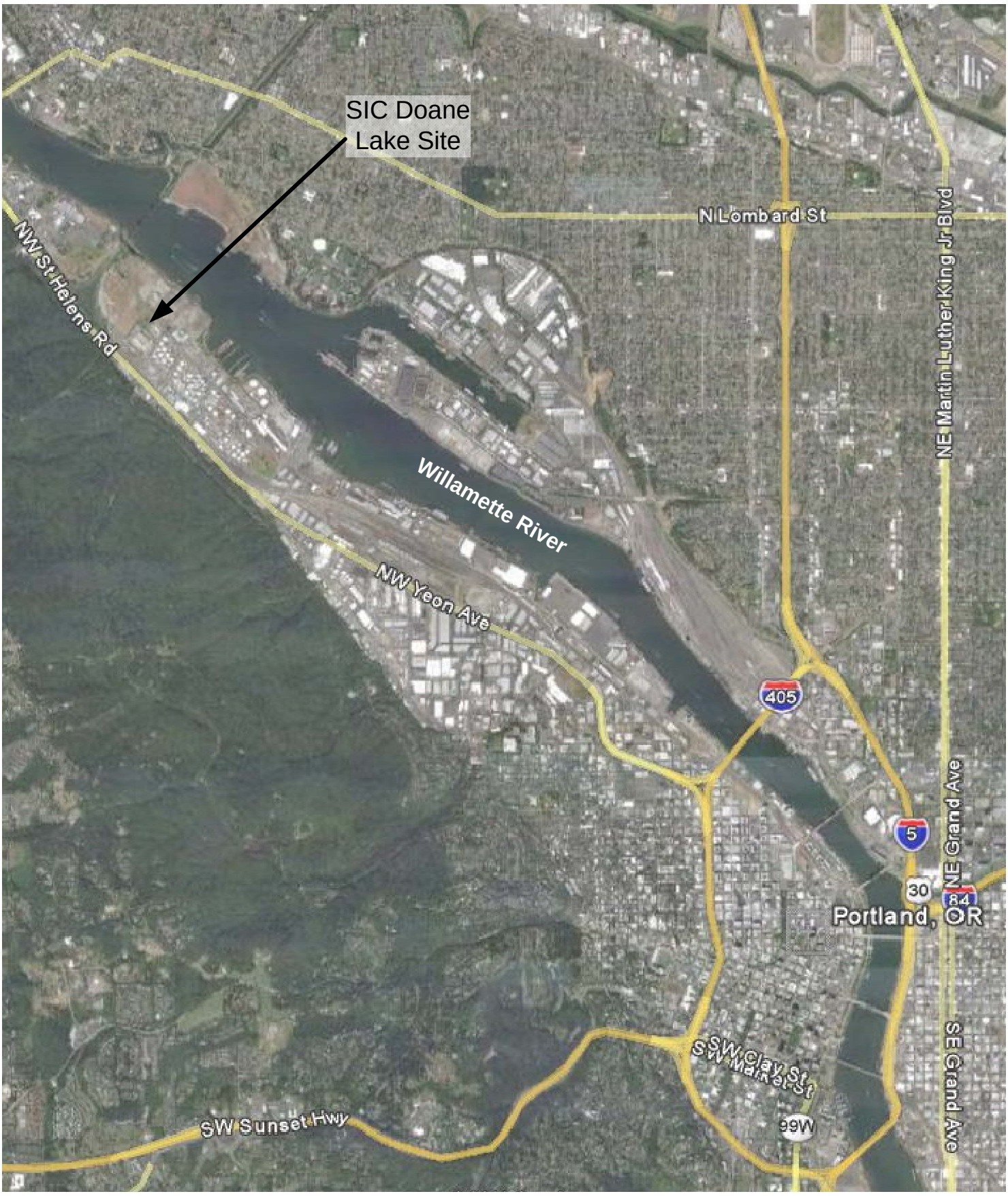
247 Exceeds 10Xs EPA In-Water PRG SLV

BOLD Constituent detected above Method Report Limit (MRL)

highlighted Method Detection Limit (calculated as 1/2 of MRL) exceeds 10X EPA Focused In-Water PRG or JCSC SLV, which ever is appropriate.

na = not analyzed
DEQ = Department of Environmental Quality
EPA = U.S. Environmental Protection Agency
LWG - Lower Willamette Group
FS = Feasibility Study
mg/kg = milligrams per kilogram
mg/L = milligrams per liter
J - Estimated value. Constituent detected below the method reporting limit but above the method detection limit.
NT - Not tested
NV = no value established for this compound
U = not detected above laboratory reporting limit, indicated where available

FIGURES



Project North

True North

Approximate Scale

3600 Feet

Base photograph August 2010

Figure 1
Site Location
Schnitzer Investment Corp. Doane Lake

BRIDGEWATER GROUP, INC.

Project North

Approximate Scale

300 Feet

Tax Lot Boundry

Base photograph August 2010

Figure 2
Site Vicinity
Schnitzer Investment Corp. Doane Lake

BRIDGEWATER GROUP, INC.

Project North

Approximate Scale

100 Feet

Base photograph August 2010

Figure 3
Site Layout
Schnitzer Investment Corp. Doane Lake

BRIDGEWATER GROUP, INC.

Project North

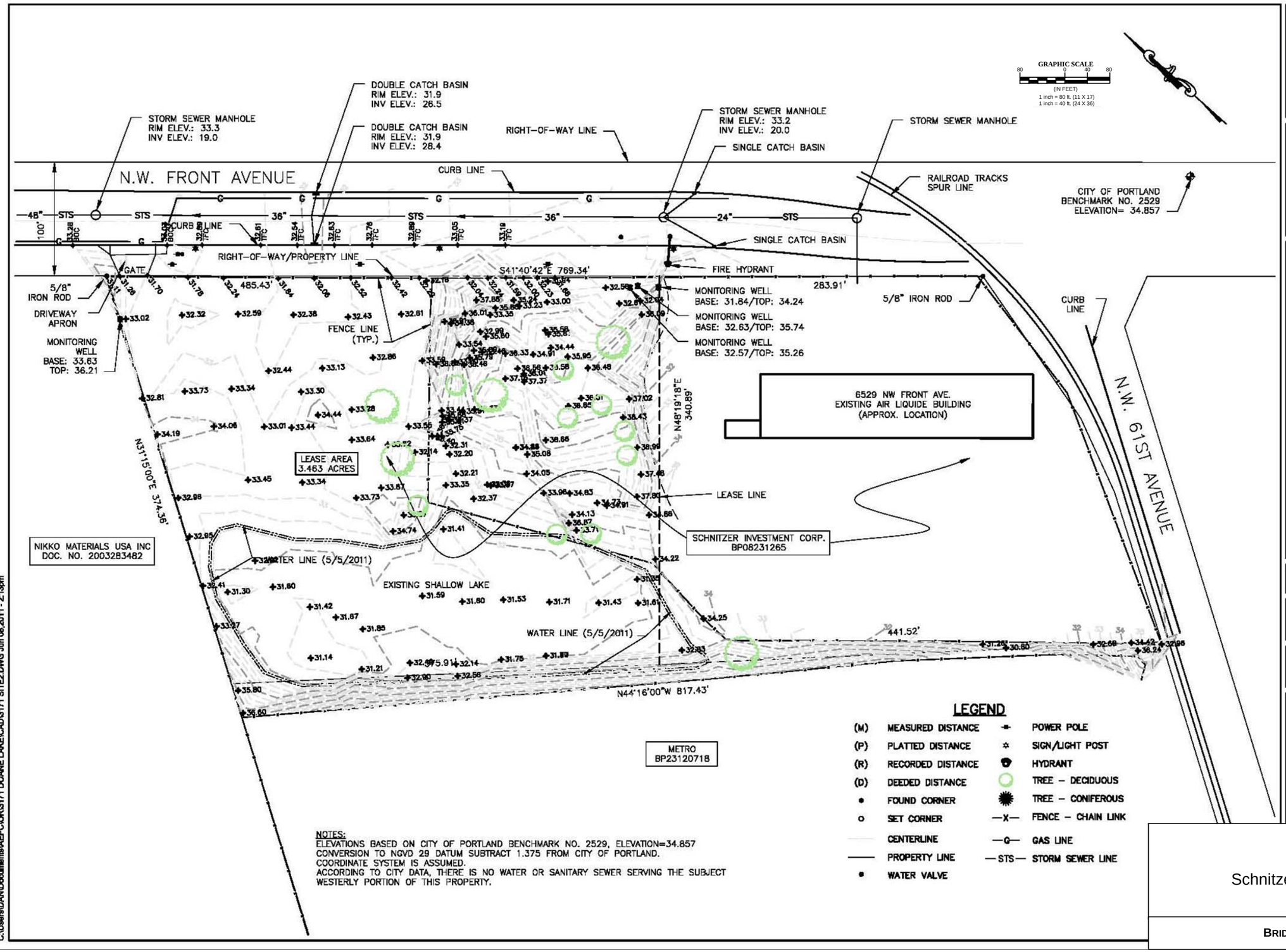
Approximate Scale

100 Feet

- Former Air Liquide Lime Pond Area (Approximate)
- SR Fill Area (Approximate)
- Property Boundary (Approximate)
- Currently exposed SR (Approximate)
- Construction / Potential ESCO Slag

Figure 4
SR Fill and Former Lime Pond Areas
SIC Doane Lake Property

BRIDGEWATER GROUP, INC.



OWNER:

PROJECT MANAGER

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4500 SW KRUSE WAY
LAKE OSWEGO, OR 97206
PH: 503.675.5252
FAX: 503.675.1980
CONTACT: AARON LERITZ
aleritz@bridgeh20.com

ENGINEER

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4305 SE HARNEY ST.
PORTLAND, OR 97206
PH: 503-568-7700
CONTACT: DAN BURTON
dburton@aepc-cis.com

2705 N. MAIN STREET
OMAHA, NE 68022
PH: (402) 289-5040
FAX: (402) 289-5045
AE INC. PROJECT #3171

REGISTERED PROFESSIONAL LAND SURVEYOR
OREGON
JANUARY 18, 1977
DANIEL T. BURTON
2245
RENEWS 12/31/11

DRAWN BY:	CHK BY:	APV BY:
DB	TM	TM

SITE NAME:
DOANE LAKE

BRIDGEWATER REF #
SIC-025

SUBMITTALS

REV.	DATE	DESCRIPTION
A	XX	XX

Figure 5
Topographic Survey
Schnitzer Investment Corp. Doane Lake
Survey Date: June 6, 2011

BRIDGEWATER GROUP, INC.

C:\Users\Aaron Leritz\Documents\09-Schnitzer\Doane Lake\Source Control Decision Document\Figure 5 & 17 & SAP1 Doane Lake FSCE 110818.xsd
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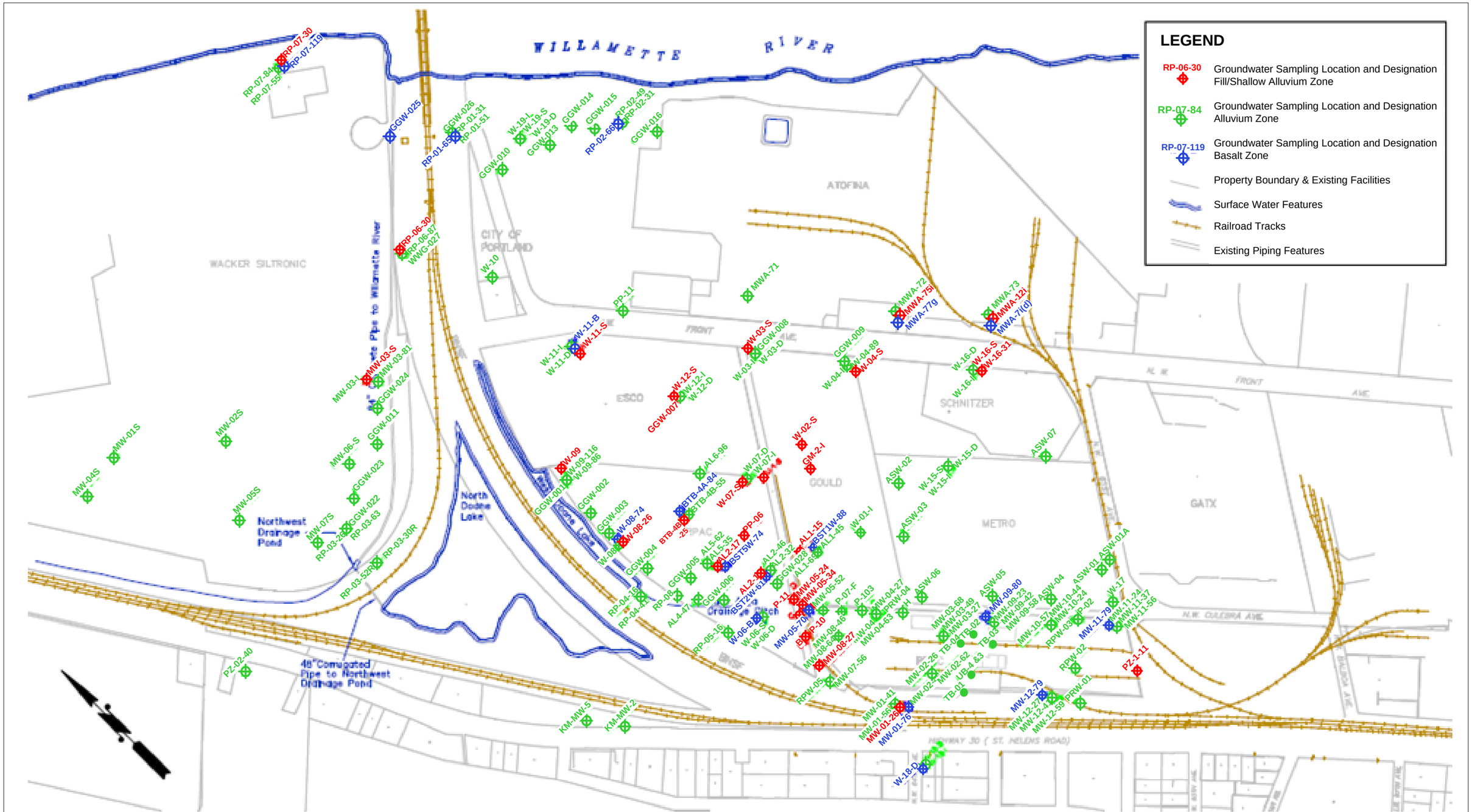


Source: AMEC Earth & Environmental, Final Groundwater Characterization Report, RPAC – Portland Site, March 28, 2003

Figure 6a
Groundwater Monitoring Locations
SIC Doane Lake

BRIDGEWATER GROUP, INC.

Base Photograph August 2010

Project North

Approximate Scale

200 Feet

Fill/Shallow Groundwater Monitoring Well

23000 Total PCB Concentration in Groundwater Sample (pg/L)

Figure 6b
PCB Concentrations in Groundwater Fill/Shallow Zone
Schnitzer Investment Corp. Doane Lake

BRIDGEWATER GROUP, INC.

Base Photograph August 2010

Project North

Approximate Scale

200 Feet

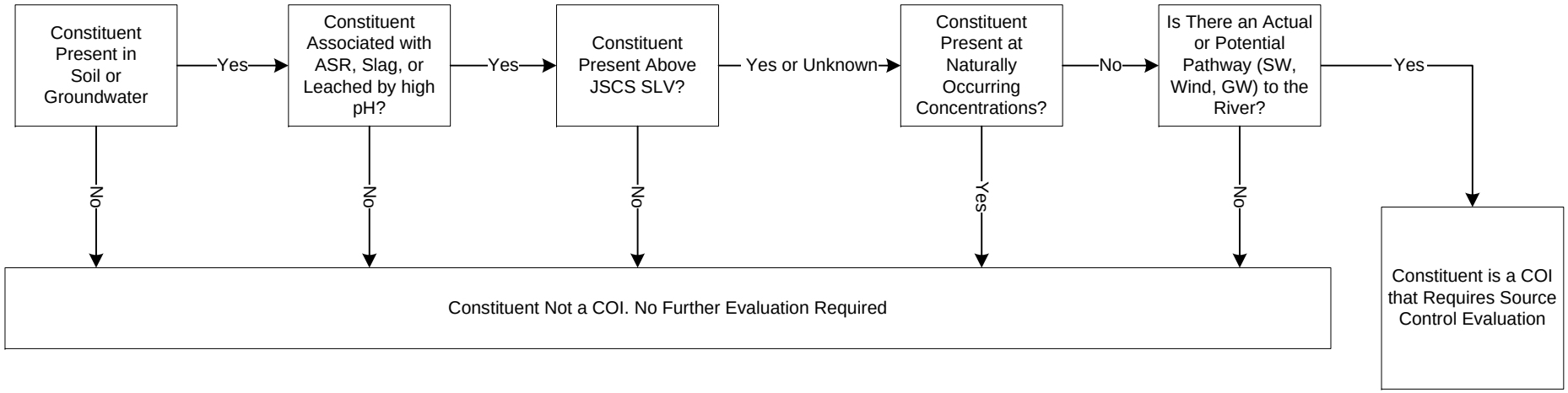
Intermediate/Alluvium Groundwater Monitoring Well

23000 Total PCB Concentration in Groundwater Sample (pg/L)

Figure 6c

PCB Concentrations in Groundwater Intermediate/Alluvium Zone
Schnitzer Investment Corp. Doane Lake

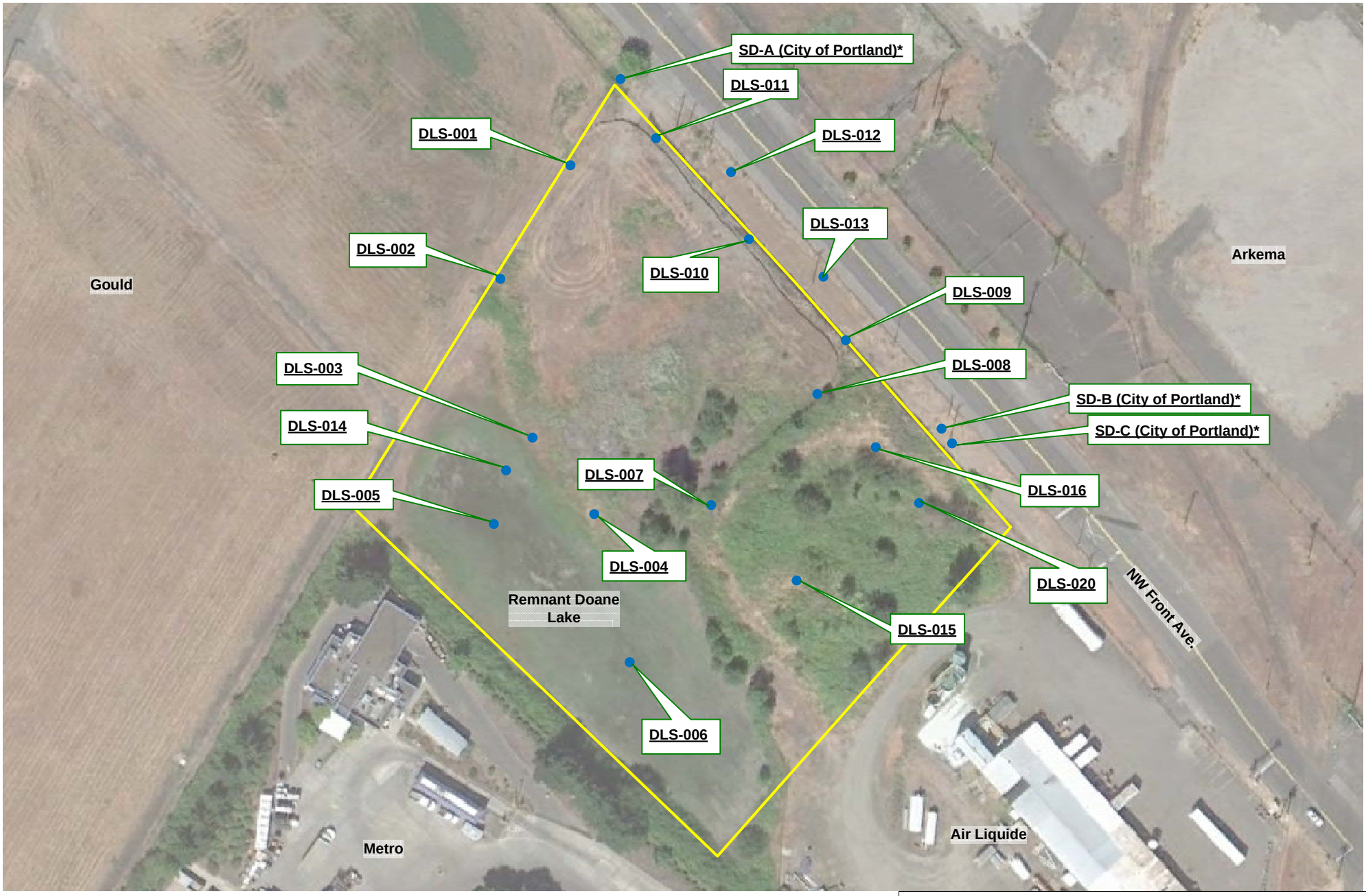
BRIDGEWATER GROUP, INC.



C:\Users\Aaron Leritz\Documents\03-Schnitzer\Doane Lake\Source Control Decision Document\Figure 7 COI flow chart.vsd

Figure 7
COI Logic Diagram
Schnitzer Investment Corp. Doane Lake

BRIDGEWATER GROUP, INC.



Project North

Approximate Scale

100 Feet

Base photograph August 2010

Notes:

Constituents listed if detected 10Xs greater than EPA Focused In-Water Preliminary Remediation Goals (PRGs)

- Surface Soil Sample Location

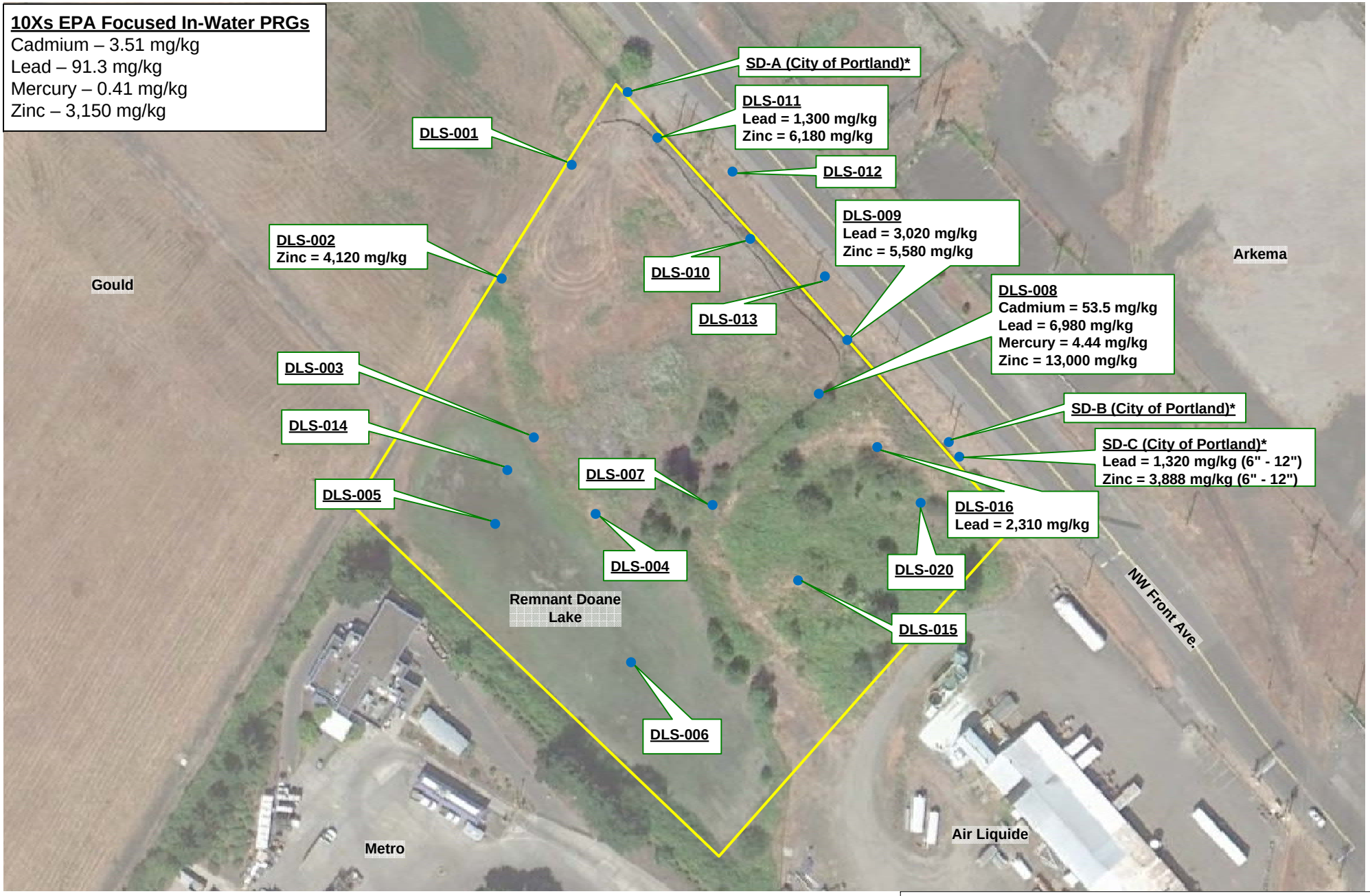
* City of Portland, June 2012 Shallow Soil Sampling. Locations Approximate

Figure 8

Surface Soil Sample Locations

Schnitzer Investment Corp. Doane Lake

BRIDGEWATER GROUP, INC.

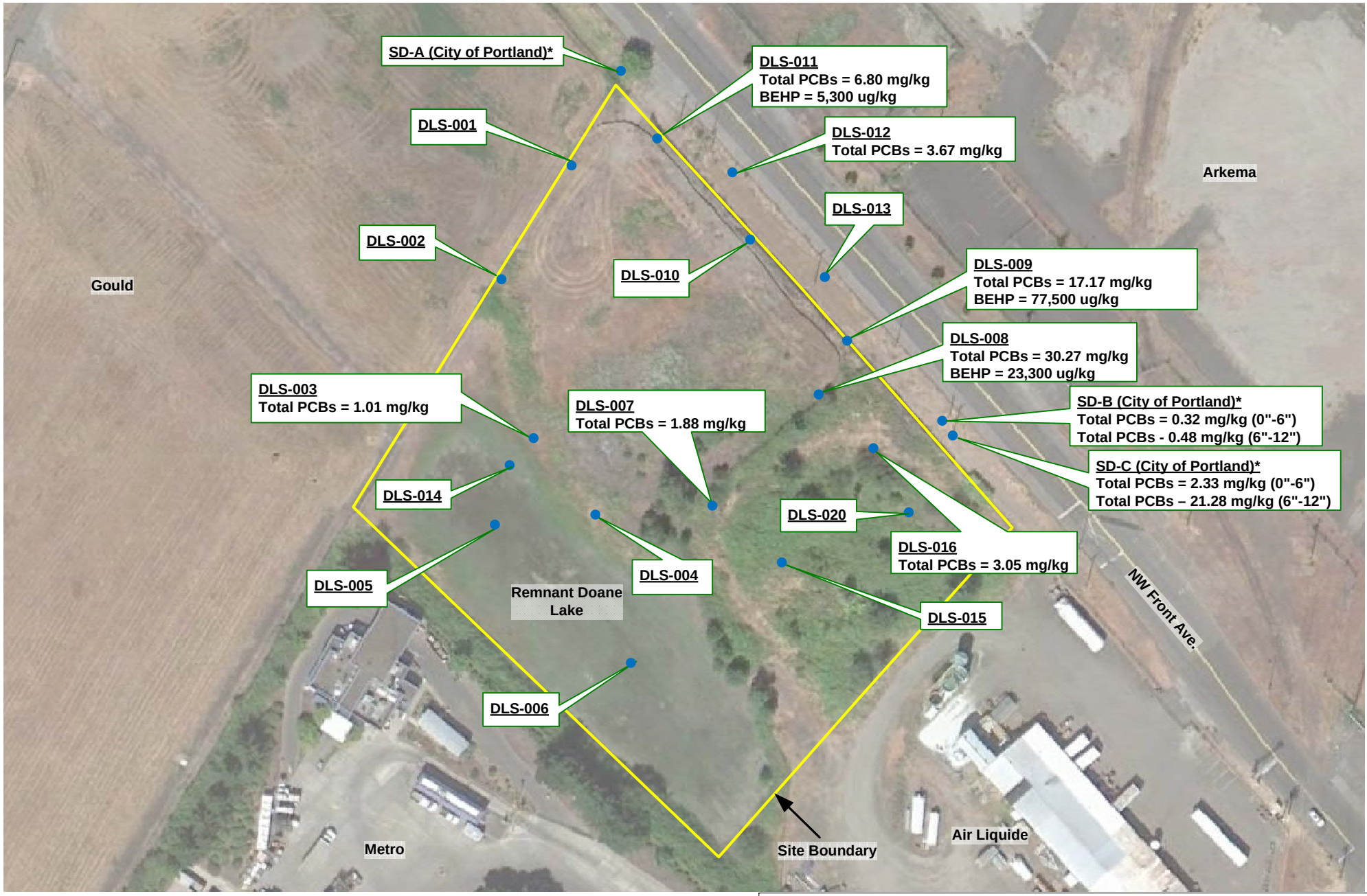


Notes:
Constituents listed if detected 10Xs greater than EPA Focused In-Water Preliminary Remediation Goals (PRGs)

- Surface Soil Sample Location
- * City of Portland, June 2012 Shallow Soil Sampling. Locations Approximate

Figure 9
Surface Soil Total Metals Results Exceeding 10Xs the EPA Focused In-Water PRG
Schnitzer Investment Corp. Doane Lake

BRIDGEWATER GROUP, INC.



Project North

Approximate Scale

100 Feet

Base photograph August 2010

Notes:

Total PCBs = Sum of Detected Aroclors

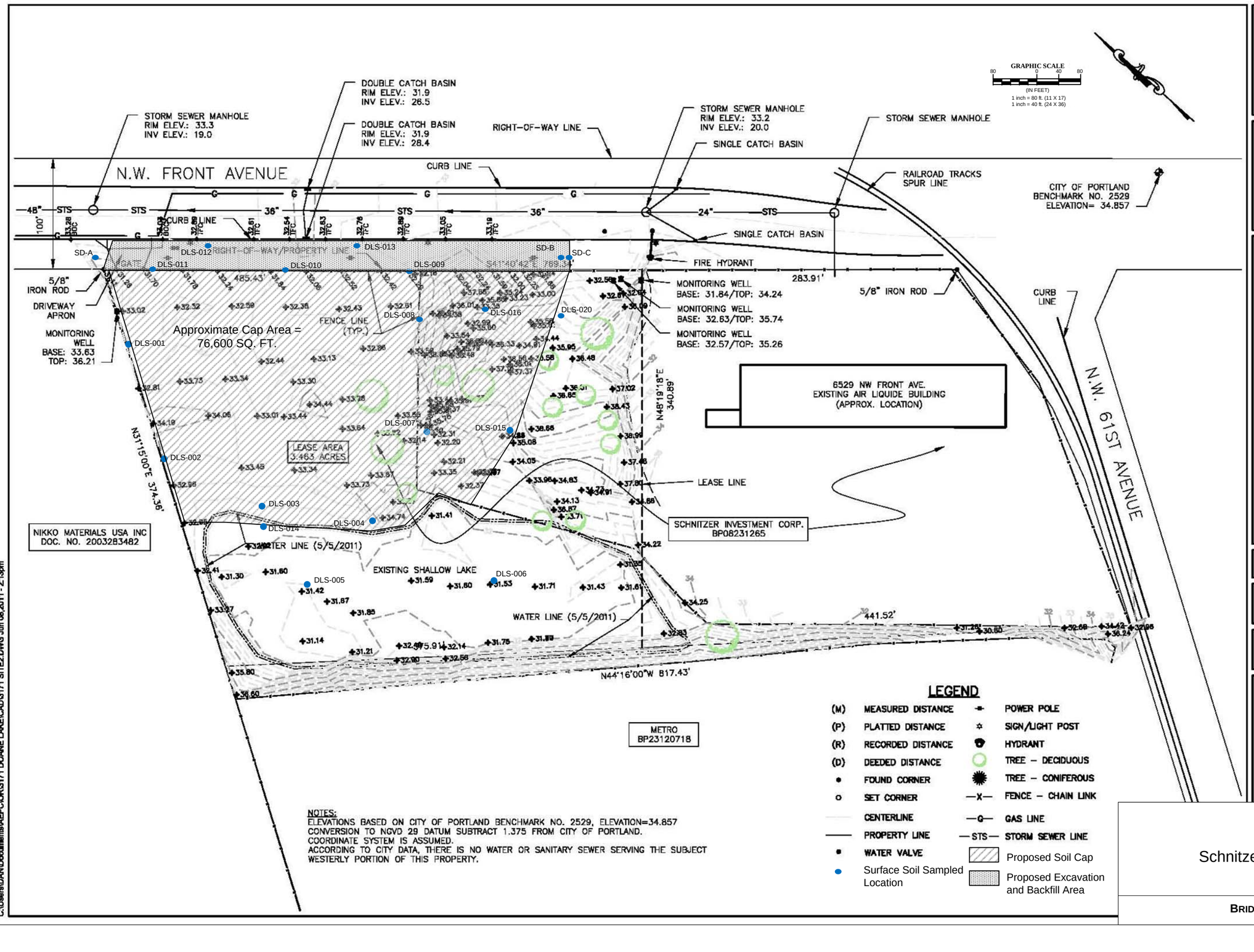
● Surface Soil Sample Location

* City of Portland, June 2012 Shallow Soil Sampling. Locations Approximate

Figure 10

Surface Soil PCB and Bis(2-ethylhexyl)phthalate Results Exceeding 10Xs the EPA Focused In-Water PRGs or 10Xs JSCS Bioaccum Bis(2-ethylhexyl)phthalate SLV
Schnitzer Investment Corp. Doane Lake

BRIDGEWATER GROUP, INC.



NOTES:
ELEVATIONS BASED ON CITY OF PORTLAND BENCHMARK NO. 2529, ELEVATION=34.857
CONVERSION TO NGVD 29 DATUM SUBTRACT 1.375 FROM CITY OF PORTLAND.
COORDINATE SYSTEM IS ASSUMED.
ACCORDING TO CITY DATA, THERE IS NO WATER OR SANITARY SEWER SERVING THE SUBJECT WESTERLY PORTION OF THIS PROPERTY.

LEGEND

(M)	MEASURED DISTANCE		POWER POLE
(P)	PLATTED DISTANCE		SIGN/LIGHT POST
(R)	RECORDED DISTANCE		HYDRANT
(D)	DEEDED DISTANCE		TREE – DECIDUOUS
•	FOUND CORNER		TREE – CONIFEROUS
o	SET CORNER	—X—	FENCE – CHAIN LINK
	CENTERLINE	—G—	GAS LINE
	PROPERTY LINE	—STS—	STORM SEWER LINE
•	WATER VALVE		Proposed Soil Cap
•	Surface Soil Sampled Location		Proposed Excavation and Backfill Area

OWNER:

PROJECT MANAGER

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dburton@aepc-cis.com
—
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PH: (402) 289-5040
FAX: (402) 289-5045
AE INC. PROJECT #3171

REGISTERED PROFESSIONAL LAND SURVEYOR
OREGON
JANUARY 15, 1987
DANIEL T. BURTON
2245
RENEWS 12/31/11

DRAWN BY:	CHK BY:	APV BY:
DB	TM	TM

SITE NAME:
DOANE LAKE

BRIDGEWATER REF #
SIC-025

SUBMITTALS

REV.	DATE	DESCRIPTION
A	XX	XX

Figure 11
Capping and Excavation Areas
Schnitzer Investment Corp. Doane Lake

BRIDGEWATER GROUP, INC.

C:\Users\Aaron Leritz\Documents\03-Schnitzer\Doane Lake\Source Control Decision Document\Figure 11 Cap and Excavate Plan.vsd
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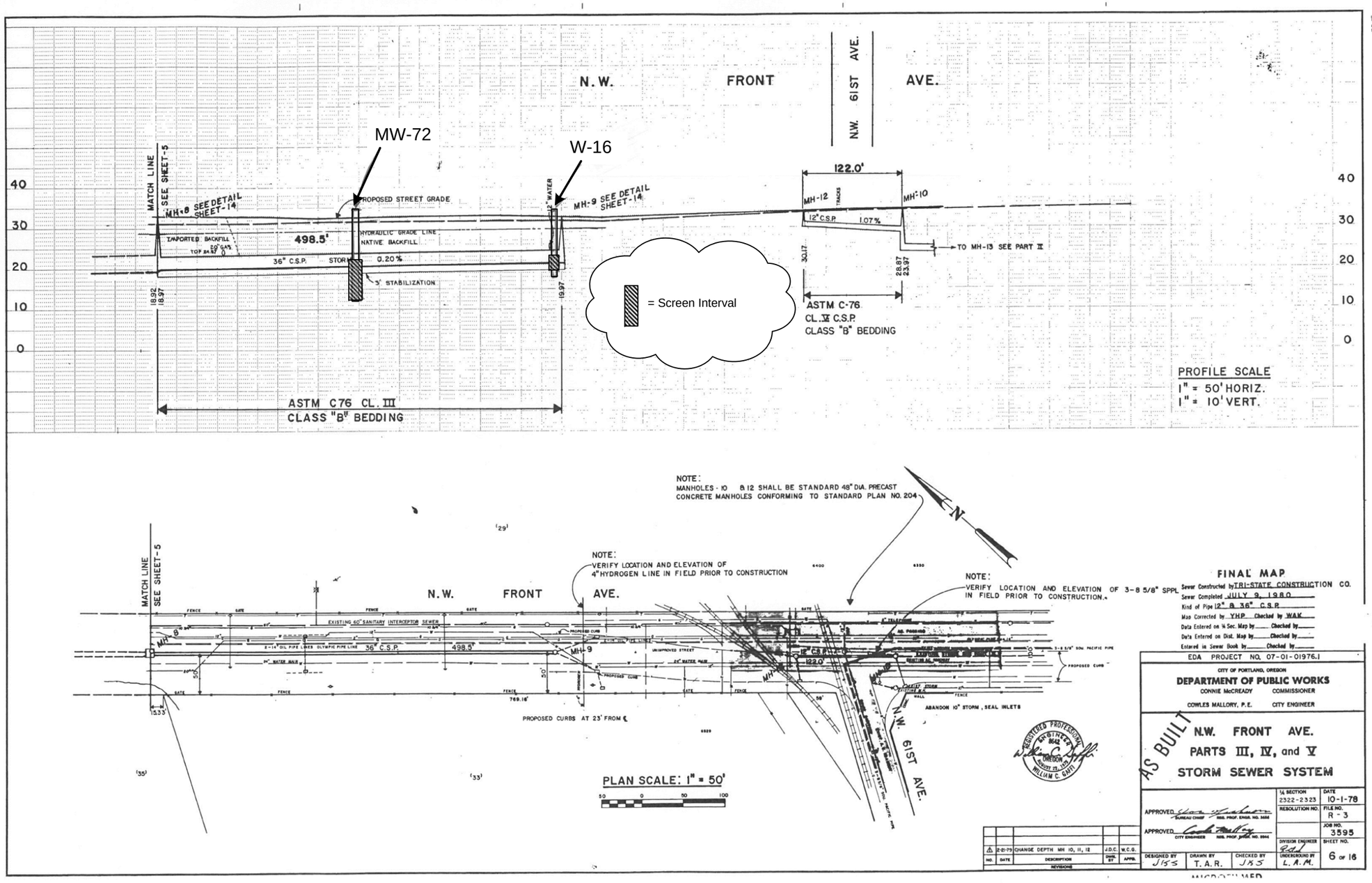


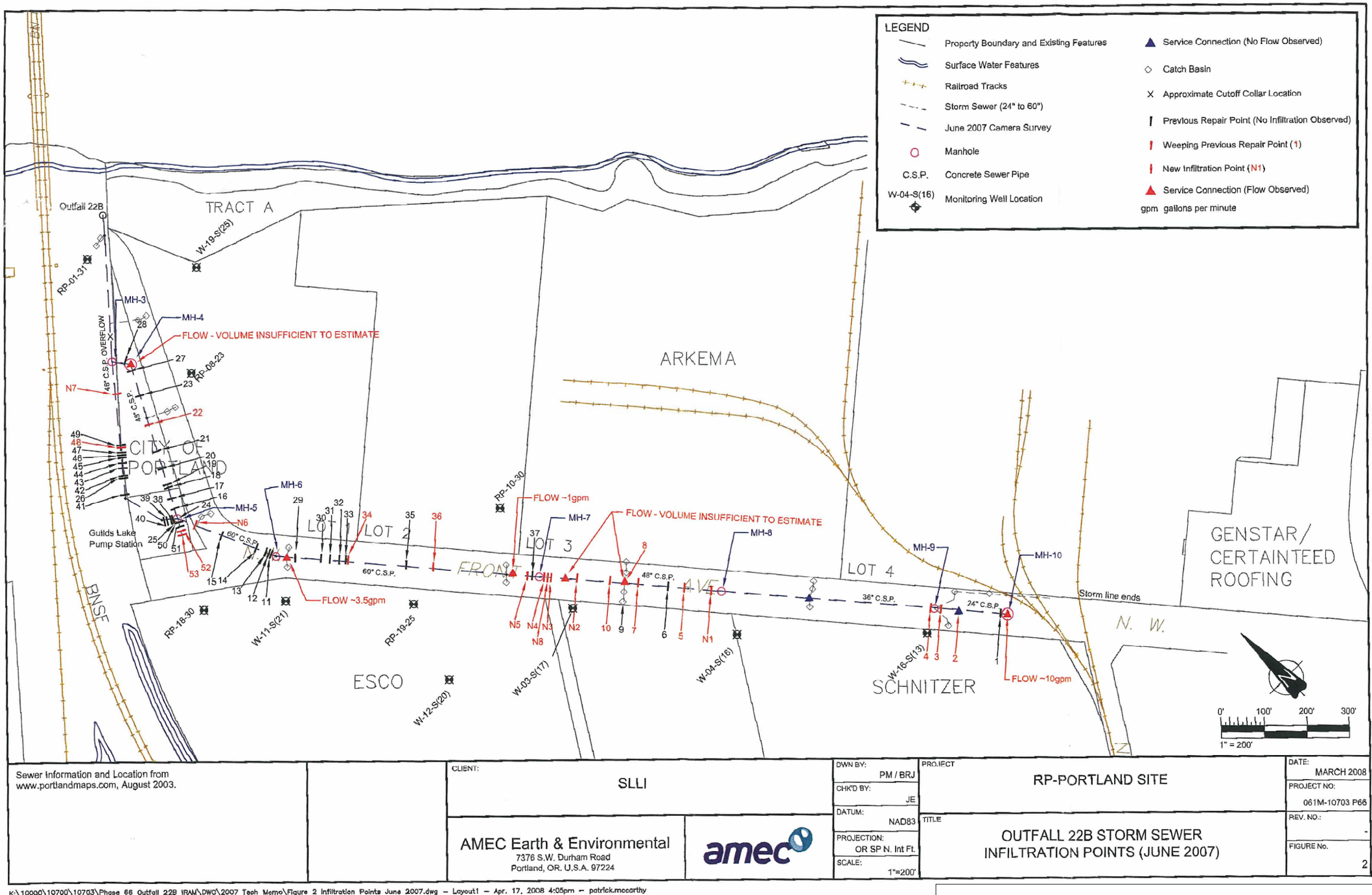
C:\Users\Aaron Lentz\Documents\03-Schnitzer\Doane Lake\Source Control Decision Document\Figure 12 13 14.vsd

Figure 12

AS BUILT – N.W. Front Ave Parts III, IV, and V Storm Sewer System

SIC Doane Lake Property

BRIDGEWATER GROUP, INC.



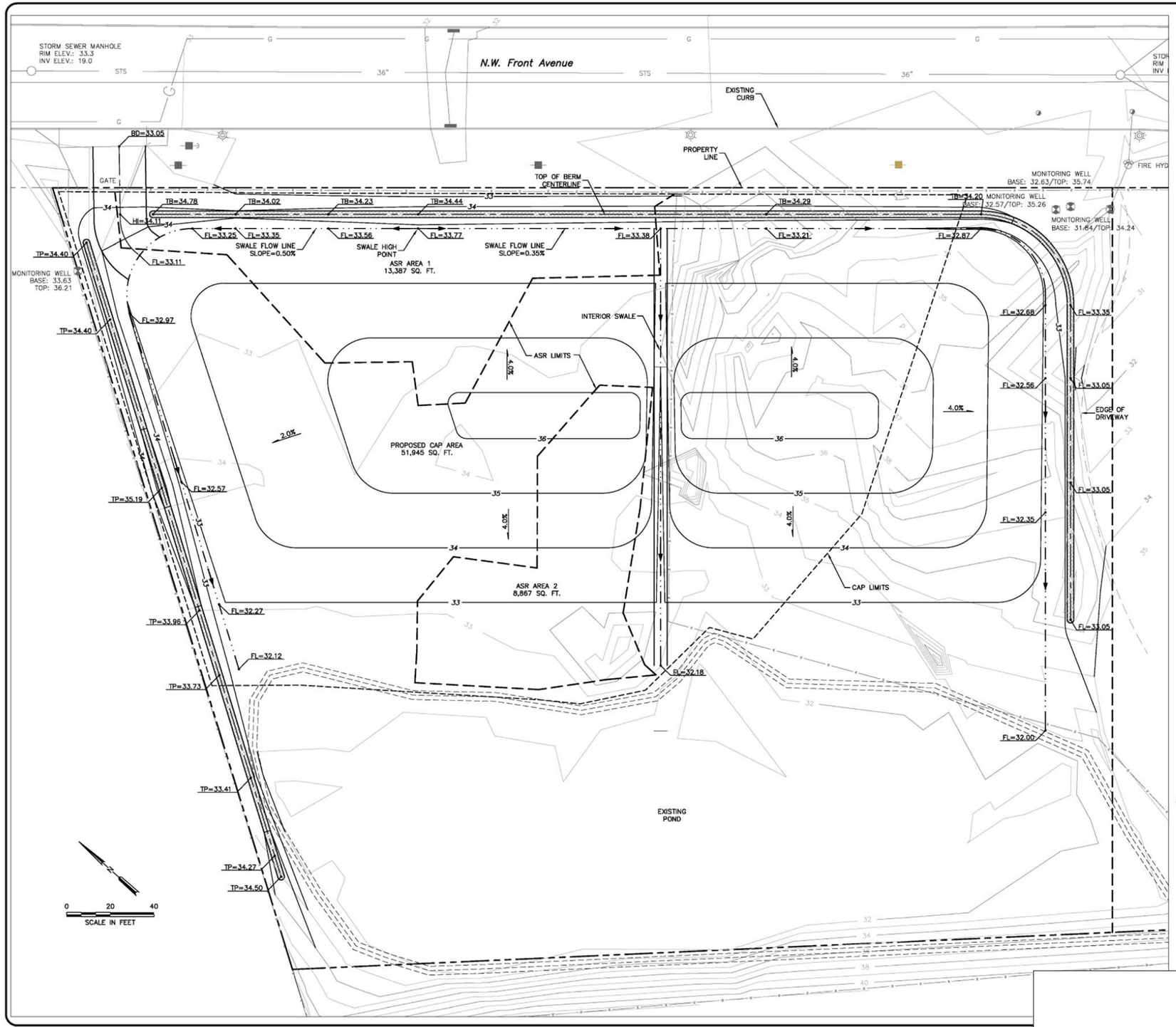
Sewer Information and Location from www.portlandmaps.com, August 2003.

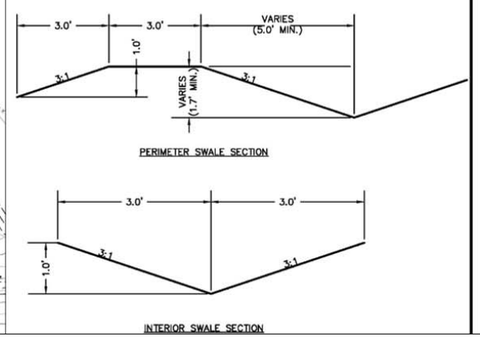
CLIENT:	SLLI
	AMEC Earth & Environmental 7376 S.W. Durham Road Portland, OR. U.S.A. 97224
DWN BY:	PM / BRJ
CHK'D BY:	JE
DATUM:	NAD83
PROJECTION:	OR SP N. Int Ft.
SCALE:	1"=200'
PROJECT	RP-PORTLAND SITE
TITLE	OUTFALL 22B STORM SEWER INFILTRATION POINTS (JUNE 2007)
DATE:	MARCH 2008
PROJECT NO:	061M-10703 P68
REV. NO.:	-
FIGURE No.	2

K:\10000\10700\10703\Phase 66 Outfall 22B IRAM\DWG\2007 Tech Memo\Figure 2 Infiltration Points June 2007.dwg — Layout1 — Apr. 17, 2008 4:05pm — patrick.mccarthy

Figure 13
Outfall 22B Storm Sewer Infiltration Points (June 2007)
SIC Doane Lake Property

BRIDGEWATER GROUP, INC.





DOANE SITE 7/24/12

DRAWING NO. 1

PROJECT NO.

DOANE LAKE CAP
NW FRONT AVENUE
PORTLAND, OREGON

SITE PLAN

TRT ENGINEERING LLC
2636 S.E. MARKET STREET
PORTLAND, OREGON 97214
PHONE (503) 235-0932
FAX (503) 235-7593

REV	DATE	DESCRIPTION	DWN. BY	DES. BY	CHK. BY	APP. BY
	DATE OF ISSUE JUNE 2012		TRT	TRT		

DWN. BY
DES. BY
CHK. BY
APP. BY

Figure 14
Conceptual Grading Plan and Cap
SIC Doane Lake Property

BRIDGEWATER GROUP, INC.